PB-250 436

NATIONAL SAFE DRINKING WATER STRATEGY. ONE STEP AT A TIME

Environmental Protection Agency
Washington, D. C.

May 1975

DISTRIBUTED BY:

NTIS

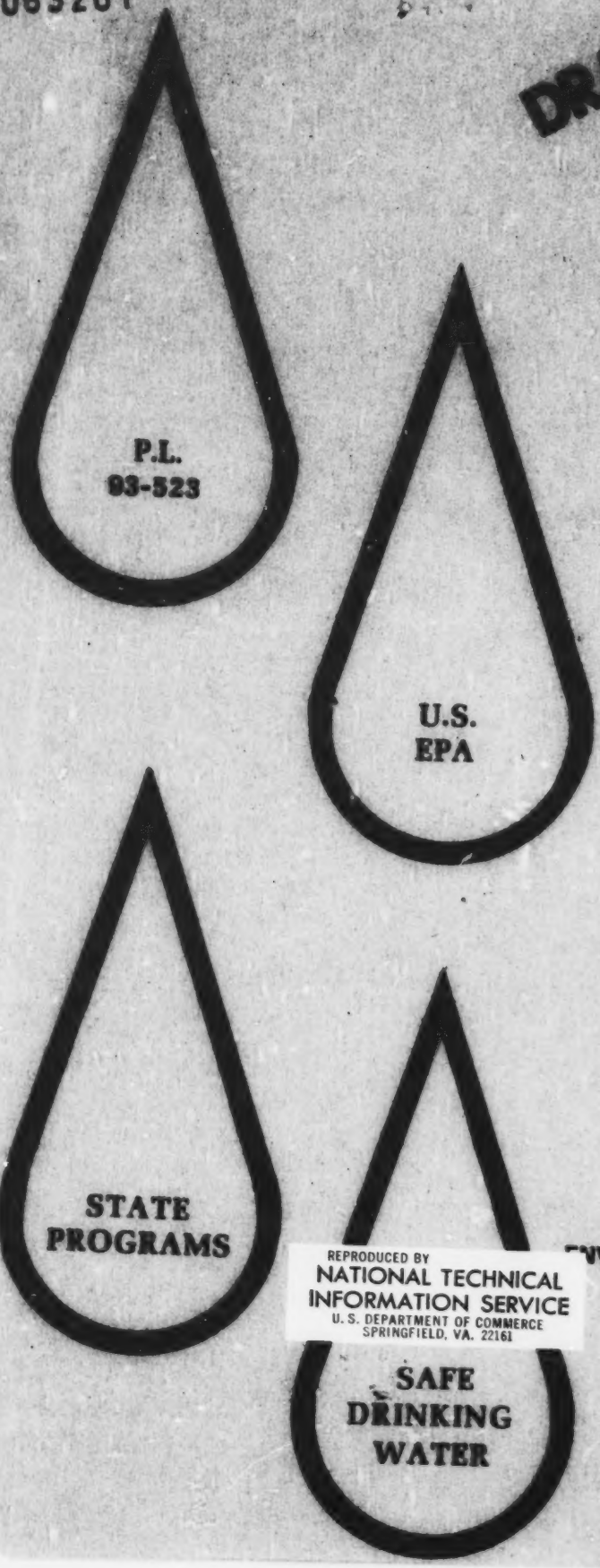
National Technical Information Service
U. S. DEPARTMENT OF COMMERCE

063201

PB 250 436

DRAFT

NATIONAL SAFE DRINKING WATER STRATEGY



ONE STEP AT A TIME

May 1975

UNITED STATES
ENVIRONMENTAL PROTECTION AGENCY
WASHINGTON, D. C. 20460

REPRODUCED BY
NATIONAL TECHNICAL
INFORMATION SERVICE
U. S. DEPARTMENT OF COMMERCE
SPRINGFIELD, VA. 22161

ATTENTION

AS NOTED IN THE NTIS ANNOUNCEMENT,
PORTIONS OF THIS REPORT ARE NOT LEGIBLE.
HOWEVER, IT IS THE BEST REPRODUCTION
AVAILABLE FROM THE COPY SENT TO NTIS.

BIBLIOGRAPHIC DATA SHEET	1. Report No. P.L. 93-523	2.	3. Recipient's Accession No.

4. Title and Subtitle
National Safe Drinking Water Strategy
One Step at a Time

5. Report Date 5/75

6.

7. Author(s)

8. Performing Organization Rept. No.

9. Performing Organization Name and Address
Office of Planning and Evaluation
U.S. Environmental Protection Agency
401 M Street, S.W.
Washington, D.C. 20460

10. Project/Task/Work Unit No.

11. Contract/Grant No.

12. Sponsoring Organization Name and Address

13. Type of Report & Period Covered

14.

15. Supplementary Notes
in cooperation with the Water Supply Division DRAFT

16. Abstracts
The safe drinking water strategy presented in this paper has been developed to clarify EPA policy with respect to implementing the Safe Drinking Water Act (SDWA). The implementation principles are: public health considerations deserve highest priority; to encourage state and local participation in decision-making; to reduce need for massive changes in current state operations.

17. Key Words and Document Analysis. 17a. Descriptors
drinking water
monitoring
underground injection control

17b. Identifiers/Open-Ended Terms

17c. COSATI Field Group

18. Availability Statement	19. Security Class (This Report)	21. No. of Pages
unlimited	UNCLASSIFIED	62
	20. Security Class (This Page) UNCLASSIFIED	22. Price $5.00

NTIS-35 (REV. 10-73) ENDORSED BY ANSI AND UNESCO. THIS FORM MAY BE REPRODUCED USCOMM-DC 8265-P74

Executive Summary

DRAFT

Reproduced from best available copy.

Statement of Purpose

The sub-title of this strategy, One Step at a Time, epitomizes EPA's approach to implementing the Safe Drinking Water Act (SDWA). We begin by assuming that the State and local governments, and the owners of public water supplies are actively interested in assuring that the citizens of this country have safe water to drink. We may differ in specifics, but that basic assumption of common purpose will guide all of EPA's actions in this program. We plan to approach the regulatory process embodied in the SDWA on a step-by-step basis, recognizing that we cannot correct all problems in a day -- or even in a decade in some places. Our flexibility, however, should not be confused with lack of purpose or conviction. We intend to uphold the law.

Principles of Implementation

This strategy proposes eleven basic principles that EPA will use in implementing the SDWA. They include a commitment to give highest priority to matters of public health; to involve the States, local governments, and consumers in all aspects of the program; to attack the worst problems first; to take costs into consideration in all phases of the program; to build on existing state and local water supply control programs; to decentralize decision-making to the EPA regional offices; to consider the environmental side-effects of actions taken under the SDWA; and to minimize "red-tape" in all actions.

Goals, Objectives, and Priorities

The goal of the Drinking Water program is "to ensure that all citizens have safe water to drink." The social and economic costs

DRAFT

of reaching that goal will be considered in the progams developed to meet it. A variety of sub-goals and objectives are proposed which should facilitate the accomplishment of the overall goal in a step-by-step manner.

Strategy Overview

The Safe Drinking Water Act was not planned to produce a bureaucratic program, and EPA intends to assure that it does not come out that way. The Act is designed basically to be self-enforcing without the need for a complicated program structure. It is clearly the responsibility of the local utility to perform the required monitoring (§1415) and give public notice when its drinking water is not up to standards (§1414(c)). EPA believes that, in general, the most effective way to achieve compliance with the National Primary Drinking Water Standards (both interim and revised) is by assuring that the consumers are aware of deviations from maximum contaminant levels so that they can ensure that corrective action is taken. Where necessary, of course, a State should take action under its own regulations, or EPA may bring an action under §1414. But realistically, with approximately 240,000 public water suppliers nationally, the States and EPA must rely on the pressures generated from public notification to produce compliance for many public water systems.

This strategy proposes five options for different levels of Federal/State partnership in the enforcement of the primary drinking water regulations. The options range from complete certification of the State's program with no extensive Federal involvement (other than the program grant), to non-certification. EPA desires to certify all States for

DRAFT

primary enforcement responsibility in accordance with the mandate of the Act. The intent of this strategy is to establish the groundrules for a true Federal/State/local partnership, based on practical and pragmatic regulations and policies that will facilitate cooperation and result in compliance with the requirements of the SDWA.

The SDWA clearly establishes that a State must adopt regulations no less stringent than the National Primary Drinking Water Regulations before it can be certified for primary enforcement responsibility. The Act includes a variety of other requirements for certification which EPA believes can be accomplished on a step-by-step basis, building on already existing State and local procedures and organizations. EPA does not believe that all States should have identical programs in order to be certified.

The strategy also recognizes that the major impact of the SDWA progam will be felt at the local level by the suppliers of water and the consumers who must pay for it. Because the Congress was concerned that the deadlines for compliance contained in the SDWA may create undue financial burdens and hardship on some communities, the Act provides for exemptions to be granted from the drinking water regulations, provided that the public health is adequately protected. However, exemptions cannot be permanent. The Act provides a maximum of five years for compliance schedules (seven years if regionalization takes place) and requires that the schedules be presented at a public hearing before adoption.

The strategy also recognizes that the monitoring requirements of the National Primary Drinking Water Regulations can present serious

DRAFT

problems to local communities if they cannot afford all of the proposed monitoring, or if they cannot find a laboratory to conduct the analyses--or both. EPA will respond to the public comments received on the monitoring requirements contained in the proposed interim NPDWR, and will modify them if it is demonstrated that a reduced requirement will adequately protect the public health.

One way to reduce the economic impact of the SDWA regulations at the local level is to take advantage of the economies of scale inherent in regional water supply systems and management. Regionalization, moreover, is not limited to structural, physical integration of impoundment, treatment and distribution systems. It can mean shared laboratory services, training programs, billing systems and a variety of other management services that can perhaps be provided more efficiently to a group of water supplies. EPA recognizes that there are a variety of factors which may affect the viability of regionalization and does not intend to force local communities to regionalize their systems or management; that is a local decision best handled at the local level.

Finally, the strategy overview section analyzes some of the interrelationships of the SDWA and the Federal Water Pollution Control Act. EPA plans to manage the two programs concurrently, giving each the priority attention it deserves. EPA will develop an overall water program strategy in the future to cover in greater depth the many interface areas which have been identified.

Underground Injection Control Program

EPA plans to implement the Underground Injection Control (UIC) program prescribed by the SDWA with the same step-by-step approach

DRAFT

adopted for the water supply management program. The strategy reviews options for three major issues in the UIC program:

- What is a "well"?
- How will EPA approach the problem of designating States which should undertake UIC programs in response to the SDWA?
- How will EPA implement the (§1424(e) of the SDWA which pertains to sole source aquifers.

Options are presented which would define a "well" very narrowly (to include only "classical" disposal wells), or very broadly (to include industrial and municipal waste disposal pits, lagoons, etc.), or somewhere in between. The definitional problem is very serious because the EPA regulations could potentially require formal permits for hundreds of thousands of "wells" or for only a few. A balance must be struck, and public health considerations, as well as administrative workability and cost, will be the determining factors.

The SDWA clearly gives EPA administrative discretion in determining which States should be designated as requiring UIC programs under the SDWA. If a State, after being designated, does not elect to be certified by EPA to manage a UIC program, EPA is required by the SDWA to "prescribe" a program and implement it in that State. EPA desires that all designated States elect to manage their own programs. We believe that underground injection should be controlled under the SDWA in all States. The strategy, however, reviews the pros and cons of designating all States at once or on a staggered basis, perhaps ten per year for five years.

§1424(e) of the SDWA is intended to contribute to controlli potential contamination of sole (or principal) source aquifers by

DRAFT

by regulating Federal agency construction, grant, and loan guarantee programs in areas where contamination of the aquifer could endanger the public health. The strategy reviews the potentially enormous administrative workload associated with §1424(e) and proposes optional methods for implementing it. The strategy recommends that EPA conduct a national survey to identify which aquifers might be determined as "sole source" under the Act. It is also recommended that EPA build on existing Federal agency Environmental Impact Statement procedures as the basis for any reviews it might conduct of proposed Federal projects on aquifers determined under the Act as "sole source."

Finally and most importantly, EPA recognizes that all of the answers to questions on providing safe drinking water and on protecting sources of drinking water have not been found. A wide variety of "unknowns" continue to exist which will require considerable study and evaluations, both by EPA and by other levels of government, the water supply industry and the scientific and academic communities. EPA will give serious consideration to a wide variety of issues about which knowledge is limited, especially during the early stages of the program. We intend, in particular, to stress the need for developing improvements in water technology, health research and related matters and for assessing the various problems, (such as limited sources of trained manpower) which potentially might hinder the successful implementation of the program.

Public comments on this draft strategy are expected and encouraged.

E.7

TABLE OF CONTENTS

CHAPTER 1.	INTRODUCTION	p. 1
	-Purpose of the Strategy	p. 1
	-Implementation Principles	p. 2
	-Outline of the remainder of the paper	p. 4
CHAPTER 2.	PROBLEM STATEMENT	p. 5
	-Nature of the Drinking Water Problem	p. 5
	-Unknowns	p. 6
	-Legislative Guidance	p. 7
	-Brief Summary of the Legislation	p. 7
	- Federal, Regional, State, Local, and Consumer Relationships	p. 8
CHAPTER 3.	GOALS,OBJECTIVES, AND PRIORITIES	p.10
	-Goals	p.10
	-Objectives	p.12
	-Priorities	p.14
CHAPTER 4.	STRATEGY OVERVIEW	p.18
	-Introduction	p.18
	-Incentives for Encouraging State Involvement	p.21
	-Flexible Implementation	p.22
	-Regulations and Guidelines	p.22
	-Sequencing	p.23
	-State Program Grants	p.25
	-Variances and Exemptions	p.26
	-Local Utility Impact	p.30
	-Regionalization	p.34
	-Monitoring and Laboritory Facilities	p.36
	-Training and Energy Requirements	p.38
	-Relationships between SDWA & FWPCA	p.39
CHAPTER 5.	PROTECTION OF UNDERGROUND SOURCES OF DRINKING WATER	p.41
	-Underground Injection Control Program	p.41
	o Policy Issues	p.44
	#1 What is Well Injection?	p.44
	#2 Step-by-Step Program Implementation	p.49
	#3 Relationship between UIC Program and P.L.92-500	p.54
	-Sole Source (Section 1424)	.57
	o Current Status	p.59
	o Sole Source Determination	p.60
	o Project Review	p.62

DRAFT

CHAPTER 1

INTRODUCTION

Purpose of the Safe Drinking Water Strategy

The safe drinking water strategy presented in this paper has been developed to clarify EPA policy with respect to implementing the Safe Drinking Water Act (SDWA).

This strategy document is not law and does not have the status of a regulation or official rule making: it is an operational plan, and it describes what EPA plans to do in light of its legislatve mandate and the realities of existing Federal, State, and local capabilities and resources. Comments on this draft strategy are welcome from all interested parties and should be addressed to:

Deputy Assistant Administrator for Water Supply
U.S.E.P.A.
Washington, D. C. 20460

Derived from this strategy is the annual regional guidance to the Regional Administrators for their use in establishing regional priorities and objectives for the upcoming fiscal year. The Regional Administrators, in turn, must propose to the Administrator a region-specific strategy for implementing the Act. The regional strategies will be developed from the national strategy in consultation the State and local governments and with the public. Regional strategies are due to the Administrator August 1, 1975.

The following specific principles of implementation are intended to guide EPA's decisions in carrying out the mandate of the Safe Drinking Water Act. These principles are not easily applied,

DRAFT

and one may conflict at times with another. In those cases where conflicts arise, such as, for example, in deciding between reasonable cost and the protection of the public health, the advice of key policy officials should be sought by EPA staff. In some areas, guidance from the President and Congress may be needed. The implementation principles are:

- Public health considerations deserve highest priority.
  - -- Questions of aesthetics, taste, and odor will be considered, but the focus of the Agency's efforts will be on health matters.
  - -- In designing its research, monitoring and enforcement programs, EPA will generally focus its consideration on health matters, on the size of the population at risk, and on the degree of risk involved.
- Encourage State and Local participation in decision-making
  - -- EPA views the task of ensuring the maximum level of State/local involvement in the Safe Drinking Water Program as its most pressing obligation.
  - -- In addition to encouraging State and local participation in issuing regulations under the Safe Drinking Water Act, EPA will expect the States to play a major role in advising the Administrator on other determinations made under the Act, such as the requirements placed on Federal facilities to meet standards, the relative priority of communities within the State which request emergency allocation of treatment supplies, the areas which should be designated as sole-source aquifers endangered by Federally-assisted projects, and the adequacy of EPA's response to any petitions it might receive under the provisions of the Act.
- Reduce need for massive changes in current State operations.
  - -- EPA does not intend to dictate that all States adopt the same laws, organizations, or standard operating procedures in order to be certified for primary enforcement responsibility under the Act.

DRAFT

-- Reporting requirements placed on the States will be minimized and analyzed according to the cost of the reporting, and the amount of disruption which might be caused by the reporting. Where possible, format will be along the lines of that utilized in the Interstate Carrier Program.

- Encourage consumer participation in deliberations and decisions.

  --EPA intends to implement the program in the most open manner possible, assuring easy access by the public to information concerning the program.

- The Worst Problems will be given first attention

  --The "worst" problems will be defined in terms of the degree of health risk involved, the population affected and the ability to impact an undesirable situation.

- Take cost into consideration in all decisions made in the Safe Drinking Water Program

  -- The Act requires that EPA take costs into consideration in defining the interim and revised drinking water regulations, in granting variances and exemptions in States where EPA has primary enforcement responsibility, and in deciding whether to allow States to issue temporary permits for existing underground injection wells (Sec. 1412(2)). In reviewing the availability of technology to meet the requirements of regulations, EPA will fully utilize its authority to review the cost of implementation.

  -- EPA also intends to apply the concept of cost effectiveness to determinations made under the other provisions of the Act, particularly in defining regulations to give States primary enforcement responsibility, the cost requirements for public notification, the degree of reporting and record-keeping required, and the allocation of scarce chemicals and treatment supplies.

- Place maximum financial burden for implementation of regulations on the ultimate users of drinking water except as provided by State law.

  -- EPA recognizes that in many sections of the country, drinking water is either underpriced or inappropriately priced. Safe drinking water, however, has a real price, and EPA will generally encourage water suppliers to price drinking water so that users pay the costs and to develop rate schedules accordingly.

DRAFT

- Require adequate attention to the environmental impact of decisions made under the Act.

- Decentralize decision-making and operational responsibility for the Act to the EPA Regional Offices and to the State and Local Governments to the extent practicable.

  -- To the maximum extent feasible the Administrator intends to delegate to regional offices, decision-making authority on all elements of the program involving enforcement, monitoring and surveillance, technical assistance program grants and so forth. Regional offices will in particular be responsible for involving State governments in all aspects of program implementation and for certifying State programs.

- Keep paper work and red-tape to the absolute minimum

  -- EPA will ensure that, in the development of all regulations and programs, paperwork requirements do not become a significant burden either for this Agency or for States responsible for implementing the Act or for utilities responsible for complying with regulations.

- Utilize existing Federal and State resources

  -- EPA and State governments will attempt to utilize existing Federal-State programs for providing safe drinking water. In particular, EPA and States should draw on current research efforts, existing data sources, ongoing programs for monitoring and enforcement and existing training and technical assistance activities.

Outline of the remainder of the strategy

Chapter 2, PROBLEM STATEMENT briefly describes the need for action and the expected areas of difficulty in implementation. Chapter 3, proposes the GOALS, OBJECTIVES, and PRIORITIES of the program. Chapter 4, STRATEGY OVERVIEW details policy decisions that directly affect the way the new law is implemented and the steps that EPA plans to take over the next years in managing the Safe Drinking Water program. Chapter 5, PROTECTION OF UNDERGROUND SOURCES OF DRINKING WATER proposes a strategy for implementing Part C of the Act.

DRAFT

CHAPTER 2
PROBLEM STATEMENT

Reproduced from best available copy.

Nature of the Drinking Water Problem

Currently operating Federal programs for dealing with drinking water programs are clearly inadequate to assure the public has safe drinking water. §361 of the Public Health Service Act has been the major tool available prior to the passage of SDWA for ensuring the safety of drinking water. This Act applied, however, only to drinking water involved in interstate commerce and, moreover only to contaminants which might cause communicable diseases. The Act did not cover the vast majority of drinking water systems and did not protect the public from a variety of potentially dangerous contaminants. The Federal Water Pollution Control Act has some limited effect in protecting underground drinking water supplies and is gradually improving surface water used as drinking water supplies; however, it is not broad enough in its coverage to ensure the safety of all sources of drinking water.

The drinking water served to Americans varies in quality. During the period 1961-1970 there were 130 outbreaks of disease or poisoning attributed to drinking water, and these outbreaks resulted in 46,374 illnesses and 20 deaths. This represents only those cases that were reported, and for which the waterborne route was established as the cause. More important, these represent only the acute affects, and not the chronic effects that may take many years to aggregate their impact.

Studies have also shown that (1) more than half of the facilities providing drinking water have serious deficiencies, (2) more than three quarters of the operators were inadequately trained, (3) the vast majority of systems were unprotected from cross-connection with

DRAFT

contaminated water, and (4) more than three-quarters of the systems were not subjected to adequate surveillance or monitorings.

Unknowns

The basic unknown in the safe drinking water program centers around the need to better define the problem. While the general goal of assuring that the public has safe drinking water, remains clear the means to reach that end are not clear. The uncertainities revolve around:

1. What levels of the various organic, inorganic, and microbiological contaminants are "safe."

2. How much water is currently being provided in less than a "safe" condition.

3. What effort (economic or otherwise) will be necessary to go from current levels to the currently unknown "safe" levels.

EPA's research program is generally directed at resolving these three unknowns. The major emphasis of the research program will be on determining the extent of contamination of water supplies by viruses and organic and inorganic chemicals, especially those that are suspected of being carcinogenic. Additional emphasis will be placed on determining the long rather than short-term health effects of these organic and inorganic contaminants, individually and in combination. Better methods will be developed for the removal of these substances to the levels required by the drinking water standards or to a "feasible" level if the contaminant cannot be accurately enough measured in drinking water.

Water treatment technology will be developed for small water supply systems since it is these systems (serving less than 5000 people) that experience more difficulty in meeting the drinking water standards. With the discovery of the formation of halogenated organics through

DRAFT

chlorination of water supplies, techniques will be developed for their control if deemed necessary based on health effects data.

EPA's research program for the SDWA has not yet fully developed. Public comment is requested so that we may determine the relative priority of various research efforts which could be undertaken.

Legislative Guidance

"While the Committee [on Interstate and Foreign Commerce] views the problem of unsafe drinking water as a matter which is and should be primarily the concern of State and local governments, the Committee has determined that the Federal government also has a responsibility to ensure the safety of the water its citizens drink."

Brief Summary of the Legislation

In summary, the SDWA:

- Requires the Administrator of the Environmental Protection Agency to prescribe national drinking water regulations for contaminants which may adversely affect the public health;

- Requires Public Water Systems to deliver water, to monitor and test, and to operate and maintain their systems in compliance with the drinking water regulations.

- Requires drinking water systems to notify their customers of failure to comply with the drinking water regulations.

- Requires the Administrator to encourage maximum levels of State involvement in the promulgation, implementation, and enforcement of regulations and programs developed under the Act.

- Authorizes States which adopt and implement adequate standards and enforcement measures to grant certain variances from the national regulations and to grant exemptions to extend the time for compliance by any public water system; and to establish compliance schedules including interim control measures and increments of progress.

DRAFT

- Authorizes the Administrator to enforce national primary drinking water regulations and to grant exemptions and variances in States which do not have primary enforcement responsibility.

- Establishes Federal/State programs to protect underground sources of drinking water;

- Authorizes the Administrator on a temporary basis to certify the need for chlorine (or other water treatment substances) to be allocated to public water systems and require the President (or his delegate) to issue necessary allocation orders;

- Provides for Federal grants to assist State water supply management programs under the Act; and

- Provides for certain additional grants, loan guarantees, research and demonstrations to assist States in carrying out the above purposes.

Federal, Regional, State, Local and Consumer Relationships

Public Law 93-523 (the Safe Drinking Water Act) will have a profound effect on all the levels of responsibility for the provision of safe drinking water. Briefly these new roles include, but are not limited to the following:

- Federal Government

  -- EPA is to provide national policy guidance and regulations, offer technical and financial assistance to the States, conduct research, assure that adequate technology is available for meeting its regulatory requirements, allocate scarce treatment chemicals in emergency situations, and carry out the compliance programs for enforcement of the National Primary Drinking Water Regulations and underground injection regulations in those areas where the States have not been certified for primary enforcement responsibility.

  -- Other Federal agencies are to advise the Administrator in his rule-making under the Act, and to ensure that Federal facilities which manage public water supplies meet the requirements of the National Primary Drinking Water Regulations, and the Underground Injection Control Program.

Reproduced from best available copy.

DRAFT

- State Governments

  -- The State governments, to the maximum extent feasible, are responsible for enforcing the provisions of the National Primary Drinking Water Regulations and the underground injection regulations within their States, and providing technical assistance to public water suppliers to enable them to meet the requirements of the applicable regulations.

- Local Governments and Utilities

  -- Local utilities are responsible for providing drinking water which complies with the National Primary Drinking Water Regulations, including assuring that the water they treat meets contaminant levels or that necessary treatment techniques are utilized, and monitoring supplies. To the extent that local utilities are owned and operated by local governments, action to ensure compliance rests directly with the local government. In the case of investor-owned utilities, actions to ensure compliance should be subject to routine surveillance by the appropriate agency of the State government.

- Consumers

  -- Individual consumers and groups representing them are responsible for participating in the development of regulations under the Act; petitioning for attending public hearings conducted by regulation; ensuring that local utilities are adequately financed; petitioning the Administrator and State authorities to carry out the emergency provisions of the Act; and finally, bringing civil suits against the Administrator and State authorities if it is believed that they have failed to properly implement the Act.

  -- Utilize the public notification procedures of the Act (when a utility is out of compliance) as a guideline to indicate when consumer action is warranted.

  -- Consumers can expect to pay higher prices for their drinking water, reflecting any increased costs of treatment, and for the necessary monitoring to assure that the water meets the requirements of National Primary Drinking Water Regulations.

DRAFT

Chapter 3 - Goals, Objectives, and Priorities

The first step in developing a program to accomplish the mandate of the Safe Drinking Water Act is to identify a set of goals and objectives to provide a systematic national structure to achieve safe drinking water. The goals of the program must be linked in an explicit and measurable manner to day-to-day activities. Only a systematic approach will make the program manageable.

The overall goal of the program can be stated as:

To assure that the public has safe drinking water

Congress has made it clear in the Safe Drinking Water Act that the programs which EPA develops to achieve this goal are, in all cases, to take cost into consideration, and the strategy recognizes this. Secondly, it is clear that reasonable balances will have to be made among all environmental programs and that where goals among the programs conflict or are incompatible, tradeoffs may be required.

Finally, EPA recognizes that a rigorous definition of the term "safe" is not being provided and that problems may arise in developing an acceptable definition. The primary emphasis throughout the strategy, nevertheless, is on protecting the public health.

Progress towards accomplishing this overall goal is generally measurable, but not easily, and this goal certainly does not lend

DRAFT

itself to day-to-day metering to determine progress towards it.

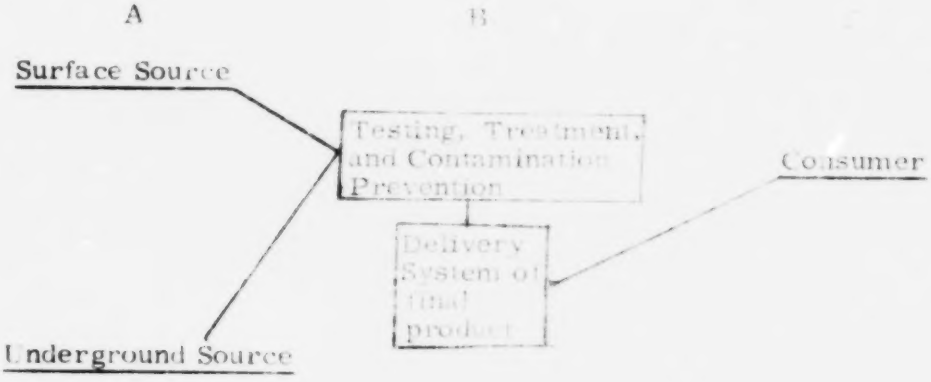
In order to accomplish this overall goal, we must conduct three inter-related programs which have the following purposes:

A. To ensure that all underground and surface sources of water which are (or potentially may be) used as drinking water supplies are protected to the extent feasible so that public water systems using these waters are not prevented from attaining the standards established in the National Primary Drinking Water Regulations.

B. To ensure that all public water systems meet the requirements of the National Primary Drinking Water Regulations.

C. To ensure that the drinking water provided to the public meets the standards established in the National Primary Drinking Water Regulations.

Viewed graphically, these three program goals would appear as a total system for the provision of drinking water, from the source of that water to consumer's tap.



DRAFT

Progress in achieving these purposes is generally measureable, and it is assumed that accomplishing them will, in most cases, lead directly to the attainment of the overall goal, the protection of public health.

In order to be successful in implementing the three programs (sub-goals) described above, EPA and the States will have to establish a basic set of program objectives.

Program Objectives**
(Including examples of measureable sub-objectives)

- To ensure an effective Federal-State partnership in the implementation of the Act.
  - certify States as having primary enforcement responsibility;
  - certify States as having responsibilies for underground injection/ programs.
- To publish and revise standards, regulations, and guidelines required by the Safe Drinking Water Act in a timely manner.
- To complete research, development, and demonstration projects which will provide scientific and technical information needed to accomplish the purposes of the Safe Drinking Water program.
  - determine health effects of contaminants in drinking water;
  - determine the effect of contaminants on underground drinking water supplies;
  - conduct a rural drinking water survey;

**Not necessarily in order of priority.

Reproduced from best available copy.

DRAFT

- determine the nature and extent of chemicals thought to be carcinogens;

- conduct demonstration projects.

- To provide technical assistance on a continuing basis to State agencies, local utilities, and Federal facilities which serve as public water supplies.

- To assure that the States develop and conduct a program which which will assist in the granting of permits or rule making for underground injections.

- To provide for a method of granting variances and exemptions from the regulations consistent with the overall goals of the program.

- To assist States in conducting surveillance activities aimed at determining the extent of the drinking water problem and the level of compliance with regulations.

  - determine the number of water systems with contaminant levels considered to be dangerous to the public health;

  - determine the number of water supply systems in compliance with primary drinking water regulations.

- To carry out the enforcement provisions of the Act in order to assure compliance with regulations and exemptions or variances granted from the regulations.

- To conduct a national program of public information activities so that the consumer will understand the nature of the problems encountered in supplying safe drinking water and to encourage consumer participation in implementation of the Act both on a national level and in all States.

  - ensure public participation in development and implementation of regulations;

  - ensure public access to information;

  - ensure public awareness of problems in drinking water systems.

DRAFT

Compared to the overall goal and the purposes, the program objectives included here are readily quantifiable and progress is fairly easily measured. Some of these objectives are almost exclusively Federal activities (Conduct Research), but most are joint responsibilities of the Federal Government and the States.

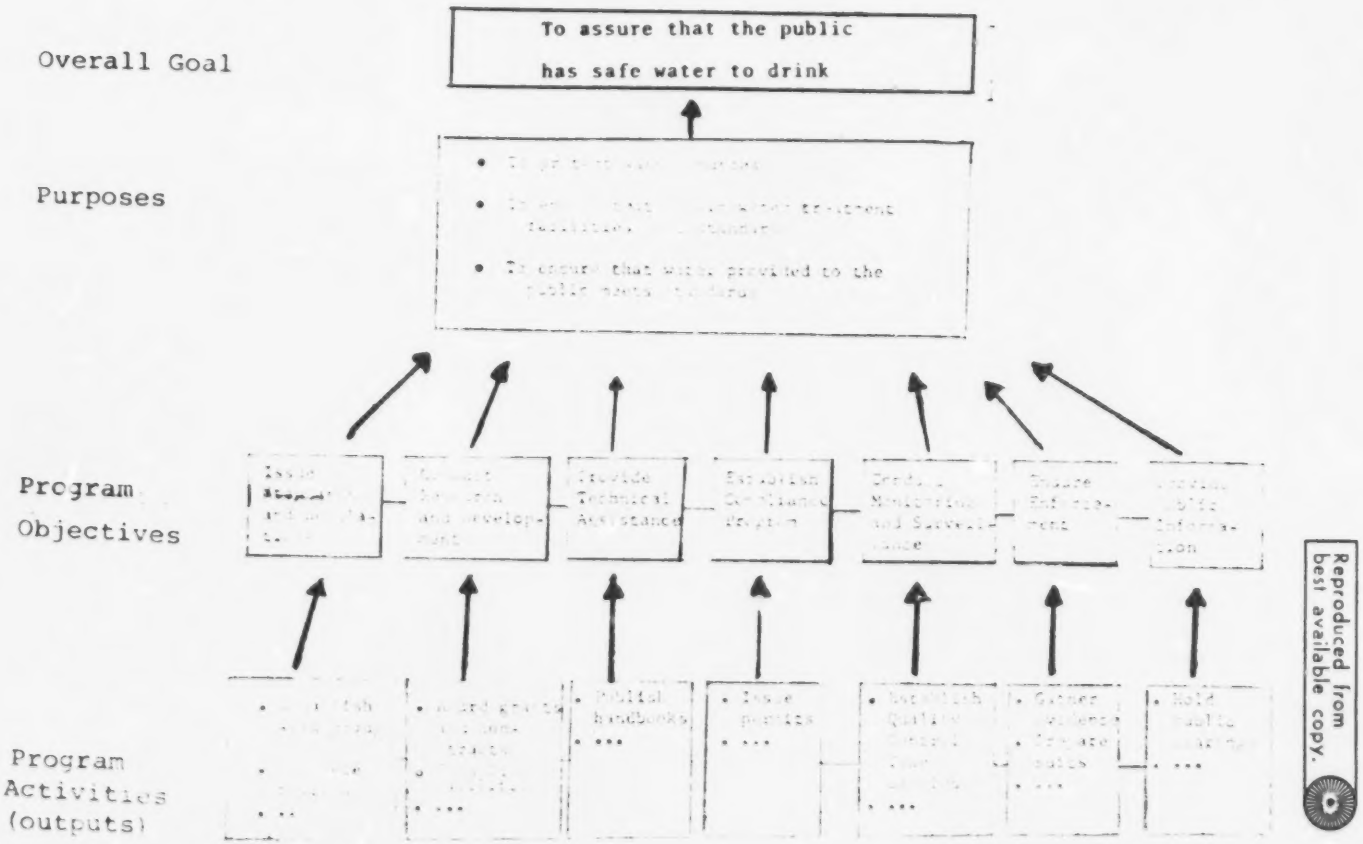
In order to accomplish the above program objectives, EPA and the States must undertake a wide variety of program activities. There are potentially hundreds of program activities and all of them will not be delineated here. All program activities are easily quantified and measured. They generally fit the category of measurable objectives used by EPA's "Management-by-Objectives" program to monitor day-to-day progress of the Agency and the States. See Figure 1 for the general relationship between goals, purposes, program objectives, and a limited number of program activities.

Priorities

If the ultimate goals of the Safe Drinking Water Program are to be accomplished on a rational basis, it is necessary to establish, through a system of priorities, a hierarchy of programs which indicates the relative emphasis that each should be given. More specifically, a system of priorities may be used to determine the levels of resources which will be allocated to each facet of the overall program.

Table I provides a list of the criteria which have been used in establishing priorities for the program activities:

Figure 1. Program Structure of the Safe Drinking Water Program



Reproduced from best available copy.

DRAFT

DRAFT

TABLE I

Tentative Criteria for Establishing Priorities

Safe Drinking Water Programs*

I. Is a deadline specified in the legislation?

II. Have actions been mandated by courts or ordered by the President?

III. How immediate is the relationship to the program's goal and objectives?

This criterion calls for two calculations:

- How crucial is the objective to the attainment of the goal of the program?
- How crucial is the conduct of the activity to the attainment of one or more objectives

IV. How sensitive is the desired program output to incremental changes in resources? Or, conversely, will a given increment of resources yield more output in one program as compared to others?

V. Will the activity foster or hinder active State participation in the program?

VI. Does the activity or program create the conditions necessary for the success of other programs that will be of high priority in the future?

Factors to be taken into account in applying this criterion are illustrated by:

- Do the skills the resources exist at the Headquarters, Region, State, local government and water authority level to implement the programs?
- Is the scientific and technological base available to support the program?

VII. Will the activity or program lead to secondary environmental impacts? What is the relationship to other Federal programs - overlap, conflicts, or synergistic?

VIII. Is there a high level of public or Congressional interest?

*Not necessarily in order of priority.

DRAFT

Utilizing the criteria in Table I, EPA and the States must begin setting priorities for the activities which form the basis for the overall Safe Drinking Water Program. The activities are listed in a descending order of emphasis:

First Priority Activities

- Promulgate high impact regulations including:
  - Interim and Revised Primary Drinking Water Regulations;
  - State Program Regulations for Primary Enforcement Responsibility;
  - Regulations for State Underground Injection Programs;
- Initiate National Academy of Sciences Study;
- Certify States as having Primary Enforcement Responsibility;
- Develop program for variances and exemptions;
- Establish system for providing State program grants;
- Provide such technical training and assistance to States as is directly related to State acceptance of primary enforcement responsibility
- Provide for consumer participation in program development and implementation;
- Develop permit programs and rule making procedures for underground injection control;
- Certify States as having responsibility for undergound injection programs;
- Conduct studies relating to causes, diagnosis, treatment and control of disease;
- Publish lists of States requiring underground injection programs;
- Design initial framework for recordkeeping and reporting;
- Determine which utilities meet drinking water standards;

DRAFT

- Develop an Agency position on the designation of sole source aquifers;
- Implement compliance activities in States without primacy;
- Develop programs for emergency enforcement actions;

Second Priority Activity

- Provide for surveillance of water treatment facilities;
- Develop programs for emergency allocations;
- Initiate studies on underground drinking water problems;
- Initiate non-emergency enforcement actions;
- Initiate Rural Drinking Water Survey;
- Provide for surveillance of Underground Injection Programs;
- Develop and implement Public Information Programs;

Third Priority

- Begin demonstration projects;
- Promulgate Secondary Drinking Water Regulations;
- Provide technical assistance which is not directly related to State acceptance of primary enforcement responsibility.

Finally, two caveats should be noted in utilizing the above priority schedule. On occasion it may become necessary to take action on a low priority item in order to accomplish a higher level activity. In those cases the priority of the low level activity should be upgraded in emphasis as may be necessary. Secondly, different operating levels of government may require different priority schedules. EPA recognizes this and variations in the above priority heirarchy are both expected and encouraged to meet regional or local needs.

---

* Actual level of emphasis for this activity will be determined by perceived need for monitoring. Monitoring systems will probably be developed on a phased basis with large systems being required immediately to provide for monitoring and smaller systems being given more time to comply.

DRAFT

EPA believes that the intent of the Congress was to place the principal responsibility for the implementation of the SDWA on the State and local governments.

Similarly, it is clearly the intent of the Congress and of EPA to assure that consumers are aware of any problems in their drinking water systems. Procedures for notifying consumers of non-compliance of public utilities are an important part of the program. As noted in the letter from Russell Train to Congressman Staggers, November 28, 1973, the Administrator stated that:

> "The enforcement approach that we favor is premised on the belief that a Federal requirement that suppliers of drinking water notify consumers of contaminants in their drinking water will institute the necessary enforcement action. An informed public is the best guardian of its own health and safety. Accordingly, I believe the legislation should require that whenever water delivered by a water supply system fails to meet the health standards, the supplier be obligated to notify its users of such failure and the possible resultant health affects. Such a notification provision, coupled with the citizen suit provision would, I believe render enforcement actions by Federal, State or other regulatory agencies largely unnecessary.... The possibility of a citizen suit provides a strong additional incentive to suppliers to maintain compliance with the standards."

tate Program Responsibility*

There are a variety of factors which will determine whether or not most States will be willing to bear a significant degree of responsibility for the Act, including: the political situation in the States; the level of resources available to the States; the potential advantages (or disadvantages), as viewed by the states, of accepting responsibility for the program; and the quality or workability of the program as developed by EPA.

---

ments of this program dealing with State Underground Injection
itrol activities are dealt with in Chapter 5.

DRAFT

The first issue EPA is faced with in developing a strategy which will result in a joint Federal-State partnership for implementation of the Safe Drinking Water Program is determining the form or forms of State involvement which will be used. The three caveats to bear in mind in reviewing the alternative options for certifiable State programs are:

- Will the option provide a system whereby the actions undertaken by the states will lead to the goals of the program?
- Will the option lead to the most efficient use of State and Federal total resources, given Congress' intention that the States should have primary responsibility?
- Will the option satisfy the legal requirements of the Safe Drinking Water Act?

State assumption of primary enforcement responsibility, and the viability of the ensuing program may be constrained by a number of basic obstacles. These obstacles include:

- Lack of funds;
- Complexity of program;
- Lack of trained personnel;
- Distrust of Federal programs;
- Legitimate disagreement with or misunderstanding of the program including the need for a national safe drinking water program, the objectives of this program, and the role States are expected to play.

The degree to which EPA and the States are able to overcome these obstacles will in large part determine the success we achieve in accomplishing the important goal of fostering an effective Federal-

DRAFT

State partnership for the implementation of the major programs under the SDWA. Together with the States we believe these obstacles can be overcome. The intention of EPA is not to force a Federal superstructure on State programs but to fit and foster State capabilities to assume the full responsibility of the Act.

The Safe Drinking Water Act specifies the requirements which States must meet before they may be certified for program authority for the water supply management elements of the Act. Section 1413(a) of the SDWA establishes the five requirements for certification of State programs for primary enforcement of the NPDWR. Basically, the State must have:

- Adopted drinking water regulations no less stringent than the current Federal standards.
- Adopted and implemented procedures for enforcement of the regulations.
- Prepared to keep records and make necessary reports.
- Adopted procedures for variances and exemptions not less stringent than the Federal procedures. (If the State chooses to give variances and exemptions at all).
- Prepared an adequate plan for emergency provision of safe drinking water.

Given the requirements of the SDWA for State acceptance of program responsibility, there are basically five different levels or forms of State involvement which may be used. In descending order of preference to EPA, they are:

I. Fully operational State programs, certified for primary enforcement responsibility, without limitations or extensive Federal assistance beyond the State Program Grants.

II. State programs certified for primary enforcement responsibility, with EPA providing limited and informal technical assistance (along with State Program Grants).

DRAFT

III. State programs certified for primary enforcement responsibility contingent on certain limited formal agreements for EPA to provide specific assistance to the State for a limited time period (along with State Program Grants). The formal assistance provided to the State could be used as part of the justification to obtain certification of its primary enforcement program.

IV. EPA retaining primary responsibility for the program, with provisions for working agreements whereby the State would carry out certain aspects of the program. (State program grant would be available only for FY76).

V. EPA retaining full responsibility for the program with the State assuming no part of the program.

These five levels of State participation represent the range of flexibility which we expect to apply to implementing the program. We seek to have all States certified and do not desire to exercise options IV or V in any State unless it is unavoidable.

The Act is quite explicit in its requirements that a State adopt drinking water regulations that are at least as stringent as the national standards promulgated by EPA. This is the one area (of the five criteria in §1413) that (along with legal issues) will be reviewed in EPA Headquarters prior to certification of primary enforcement responsibility. The other four criteria of §1413 will be reviewed by the regional offices (under the general guidance of the Administrator).

Incentives for Encouraging State Involvement

EPA's past experiences in programs similar to that required by the Safe Drinking Water Act have shown that neither the willingness nor the ability of States to assume their share of responsibilities can be taken for granted. To foster that ability and willingness, EPA must structure a system of both tangible and intangible incentives. These incentives must be directed at reducing obstacles which States will likely face in developing a capacity for implementing the program.

DRAFT

The development of a program that is manageable would in itself be a powerful incentive for encouraging State involvement. Such a program would, of course, minimize red tape, minimize Federal "big-brother-ism" and maximize the real responsibility in the hands of the State. Throughout this discussion, it has been noted that most States have existing programs in this area, and have had them for some time. The more that base can be utilized and built upon, the more the prospects for State involvement are enhanced. Other general incentives are:

Flexible Implementation. The SDWA requires EPA to establish and implement a nationally consistent program, and this objective is a desirable one. Nonetheless, that consistent program has to be implemented in more than 50 States and territories that vary in terms of existing laws, environmental conditions, ability, financial strength and governmental arrangements. EPA will push its discretion to the limit in all phases of the program to accommodate the diversity it faces. Regional offices of EPA will have flexibility in establishing programs which match the particular needs and capabilities of the individual States.

In particular, EPA will recognize the capability of local (e.g., county or municipal) governments in satisfying certain responsibilities under the program and will give due credit to such capabilities when evaluating State programs for certification.

Regulations and Guidelines

The promulgation of regulations and guidelines under the Act which will prove acceptable to the States involves reviewing the general capabilities of the States in terms of their available resources, their administrative abilities and their organizational and administrative structures. Provisions of the regulations which depend on a unreasonable

DRAFT

increase in resource requirements or entail massive organizational changes are unlikely to be acceptable to most States.

Technical Assistance. Although resources are currently very constrained EPA will, to the degree possible, offer other financial and program services to assist States in operating safe drinking water programs.

These may include:

- Implementing a comprehensive program to aid the States in the development of their programs. This assistance would include the preparation of a model State program. By "model", of course, we do not mean that all State programs should be the same and the model will provide various strategies which States, if they choose, might employ.

- Provide training sessions for State and local personnel in matters of administration, inspection, and enforcement. A variation of this is to give a professional association such as the American Water Works Association or the Conference of State Sanitary Engineers a grant to provide training, although such grants would have to be closely monitored.

- Detailing EPA employees both from EPA Headquarters and the regions to assist States in the development of drinking water programs. EPA will advise States in both substantive areas (developing monitoring and enforcement capabilities variance and exemptions programs, etc.) and in procedural areas (developing adequate administrative structures, writing draft legislative programs, etc.).

- Providing limited contractural assistance to aid States in areas not covered by program grants. (Funds are currently available).

Sequencing

Full implementation of the requirements of the SDWA for all 240,000 suppliers will take several years. Efforts by EPA and the States must be be sequenced and ranked so as to attack the problem in the most efficient manner.

The first point on sequencing implementation is the relative application

DRAFT

of EPA and State resources. The five options for State participation cited above represent the range of relative activity.

Relative State capabilities is the second point to consider in improving program implementation. Obviously a State must have enacted the necessary regulations (§1413(a)(1)). But assessment of a State's initial capability to fully implement the program must be made with the full realization that if a State is not certified for primary enforcement responsibility, then EPA will, in most cases, be responsible for all aspects of the program in the State. Also, if a State is not certified, it cannot receive a grant under §1443 after the first year.

The third point in sequencing is to determine what and where are the most serious drinking water problems, and what must be done first to treat those problems. The circumstances will be different in every State, and the approach should be flexible to fit with each situation, and should be largely based on the State's own evaluation of the problems it faces.

EPA should provide some general guidance to the states (and for its own use) on the emphasis to be given to various sized water systems in the implementation and enforcement of the programs. Nevertheless, regional and state offices shall have considerable flexibility in determining which problem areas should have highest priority and in determining how and where resources may best be utilized. In general, EPA will initially emphasize the need for assuring that large systems are in compliance with new standards.

State program managers will have to consider a variety of factors in determining where to allocate resources. Historically the larger systems have been better funded, better monitored, better maintained, and have produced better water. Smaller systems have traditionally had difficulty

Reproduced from best available copy.

DRAFT

raising funds for construction and maintenance, been less subject to State and local surveillance, and have been the cause of a higher proportion of acute disease outbreaks. This presents each program manager with the need to model the necessary balance between the focus on large or small systems. Included in such a model would be, at least, the four most significant variables which should determine the level of emphasis given to a particular system or set of systems:

1. Population served by a system or class of systems.
2. Relative health risk from the system or class of systems.
3. The potential the State has for impacting on the system(s).
4. The relative cost of surveillance and enforcement for that class of systems.

State Program Grants

Implementation of the requirements of the Act is likely to require significantly increased activity on the part of the States. To help defray these added administrative expenses, the Act authorizes EPA to make grants to the States. Funds are authorized to be appropriated in FY 76 and FY 77, and it is clearly the intent of Congress and of EPA that these funds be made available to assist States in the development of water supply supervision and underground water source protection programs that meet the primary requirements.

EPA intends to publish and promulgate State program grant regulations simultaneously with the State primary enforcement regulations. The President's budget for FY 76 contains a request for $10.0 million for State program grants, $7.5 million for water supply programs and $2.5 million for underground water programs. EPA will have the necessary regulations, application forms, and program guidance available to permit the distribution of the grant funds to qualified

DRAFT

States in the second quarter of FY 76. EPA intends to keep the requirements for the grants as simple as possible in order to facilitate early fund distribution.

EPA recognizes that most States lack sufficient resources to adequately implement the Safe Drinking Water Program and will require some continued financial assistance for several years. At the same time, it is recognized that the initial program grants are quite modest in comparison to total resources needed to implement all aspects of the program.

Initially, EPA will not utilize a system of positive incentives in its State program grants. EPA will set general standards of minimum performance, and a State will receive a base grant which may be withheld if a State is clearly not conducting a satisfactory program as required under §1413 for primary enforcement responsibility. There will be no initial EPA national policy that States should allocate 20% of their grant funds for monitoring, or enforcement, etc.

Variances and Exemptions

The Congress included provisions for variances and exemptions in the SDWA to assist those drinking water systems which will face particular difficulty in meeting the standards of the National Primary Drinking Water Regulations. They are designed to provide additional time to these systems to meet the standards while at the same time assuring that the public health is not endangered. Table 2 describes the various characteristics of variances and exemptions and the circumstances under which they may be utilized.

EPA's basic policy toward the variance and exemption provisions of the Safe Drinking Water Act is that they are tools to be used by the states in bringing public water systems into compliance with the National

VARIANCES AND EXEMPTIONS

TABLE 2

Deadline for Compliance	Conditions under which granted	Special Characteristics	Responsibilities of Facilities	Responsibilities of States	Responsibilities of Administrator
VARIANCE (Sec. 1415)					
No specific deadlines (''as expeditiously as possible as the State or Administrator determines'') (Sec. 1414(b)(A).	1.Variances may be granted to a system which cannot meet the maximum contaminant levels of the NPDWR because of the character of the raw water reasonably available to the system using the best treatment techniques (as determined by the Administrator to be to be generally available taking cost into consideration) 2.Variances may be granted from treatment techniques only if the system can demonstrate that the treatment technique is unnecessary because of the high quality of its water supply (1415(a)(1)(A)) 3.Variances may be granted if a system can demonstrate that an alternative treatment technique is no less effective than that prescribed by the Administrator.	1.Treatment techniques found to be generally available by the Administrator are those which would be available to a large urban system (House Report) 2.Only the Administrator may grant a variance from a treatment technique if a suitable alternative technique is available (1415(a)(1)(g) (1)(2)) Public participation is required both before a variance is granted and before a compliance schedule is adopted (1415(a)(1)(A)(B)) Before acting for the Administrator must find that the granting of a variance will not result in an unreasonable risk to health (1415(a)(1)(A))?	1.Submit application with suitable justification for a variance. 2.Agree to comply with the schedule set by the State 3.Demonstrate in the case of variances from treatment techniques, that the high quality of the raw water supply makes the treatment unnecessary or that an alternative technique is equally effective.	1.Grant variances. 2.Find that variance will not result in an unreasonable risk to health. 3.Provide a schedule of compliance. 4.Provide for public hearings on the granting of the variance and on the adoption of a compliance schedule. 5.Notify the Administrator of all variances. 6.Enforce the compliance schedule.	1.If the State does not have primary enforcement responsibility, the Administrator will have the same responsibilities as a State for granting variances. 2.Revoke specific variances. 3.Perform a review of all variances granted by the States within 18 months after the effective date of the interim NPDWR and subsequently, every 3 years thereafter. 4.Determine if State is substantially violating its authority in granting variances and, if so, revoke the State authority. 5.Grant variances to systems if the treatment techniques if the system can demonstrate the effectiveness of an alternative technique.
EXEMPTION (Sec. 1416)	Exemptions from either a maximum contaminant level or a treatment technique may be granted to a system if the system can demonstrate that due to compelling factors (which may include economic factors) it cannot comply with the contaminant level or treatment technique (1416(a)(1)). 2.Exemptions are primarily intended to be used where local water suppliers are unable to obtain necessary funds for capital improvements.	1.The system [illegible] which must [illegible] in operation on the effective day of the applicable maximum contaminant level or treatment technique required (1416 (a)(2)). 2.The State (or the Administrator must find that the granting of an exemption will not result in an unreasonable risk to health. (1416 (a)(3))	1.An application (with suitable justification) for an exemption. 2.Agree to comply with the schedule set by the State.	Prescribe exemptions. 2.Find that the exemption will not result in an unreasonable risk to health. 3.Provide a schedule of compliance. 4.Provide for a public hearing on the compliance schedule. 5.Notify the Administrator of all exemptions. 6.Enforce the compliance schedule.	1.If the State does not have primary enforcement responsibility, the Administrator will have the same responsibilities as a State for granting exemptions. 2.Revoke specific exemptions as necessary. 3.Perform a review of all exemptions granted by States within 18 months after the effective date of the NPDWR and subsequently, every 3 years. 4.Determine if a State is substantially violating authority in granting exemptions and, if so, revoke the State's authority.

Reproduced from best available copy.

Reproduced from best available copy.

DRAFT

Primary Drinking Water Regulations in those cases where the systems cannot comply with the regulations in the otherwise relatively short time-frame provided by the Act. EPA's objective is to bring public water systems into compliance as quickly as feasible.

The following general and specific guidelines will characterize EPA's program for variances and exemptions:

- States will have a reasonable degree of flexibility in determining how they utilize variances and exemptions, how they monitor the increments of progress in the variances and exemptions, how they set compliance schedules within variances and exemptions and how they apply variances and exemptions to various size systems within their jurisdiction; so long as they meet the requirements of the SDWA.

- The number of systems in compliance with the standards meeting compliance schedules will be considered the general measure of progress in achieving the goals of the Safe Drinking Water Program. Progress will not be measured by the number of systems granted variances and exemptions or meeting schedules which will eventually bring them into compliance.

- Variances and exemptions will not be used as a rigid enforcement tool designed to beat utilities into compliance; nevertheless, EPA's programs for granting variances and exemptions will not be so flexible that they do not effectively ensure that utilities will be brought up to acceptable standards in a reasonable amount of time.

- Based on an opinion of the Office of General Counsel, EPA's policy will be that variances and exemptions are not to be granted for other program requirements of the National Primary Drinking Water Standards such as requirements for monitoring, siting, public notification and reporting.

- EPA will proceed on the assumption that the need and the justification for variances may vary due to regional and State circumstances and EPA regional offices will have considerable authority in applying guidelines which reflect these circumstances. In general it will be recognized that what may be the best available treatment in one case might not be applicable in all other cases.

- EPA will require only that amount of technical and economic information on applications for variances and exemptions which is absolutely necessary for the evaluation of the application. More specifically, EPA will permit smaller drinking water system (and in particular, non community systems) to provide considerably less economic justification for exemptions than will be required of larger systems. Also, for purposes of dealing with non-delivery systems, EPA defines "unreasonable risk to health" to mean clear violations of the bacteriological maximum contaminant levels and selected toxic metal and chemical and maximum contaminant levels. For other chemicals and metals where the effect is of a chronic nature, a higher threshold level may be set.

Finally, and most importantly, EPA 's key administrative objective in the implementation of this program is that all possible steps will be taken to reduce the management burden of granting variances and exemptions. In particular, we intend to reduce, to the extent feasible, the paperwork required of the utilities, the States and of EPA itself and to streamline the procedures to be used in applying for and in processing variances and exemptions. EPA intends to draw on its experiences with the NPDES program under PL 92-500 as a guide; recognizing the problems which that program faced and attempting to avoid them. Some of the administrative lessons of the NPDES program which would guide implementation of the SDWA variance and exemption procedures are that:

- The technical problems involved in granting variances and exemptions are likely to be more manageable to an Agency like EPA or its State counterparts than are the administrative (or paperwork) problems. Staffing for the program in both the EPA Regional offices and the States should be balanced with both technical and administrative personnel.

- States are reluctant to assume responsibility for programs where the guidelines are not known in advance.

Reproduced from best available copy.

- Public notification and public hearing requirements are costly and will have positive impact only if handled creatively and if the program managers genuinely desire public input.

- Data systems to [illegible] and keep track of variances and exemptions should be simple and direct, and should rely on easily-available "canned" programs. All data processing systems will be developed in coordination with State agencies. EPA will, in general, permit States to take the lead in determining what type of systems are most appropriate for their needs and will, to the extent feasible, adopt its systems to those of the States.

- Applications for variances and exemptions will not be used as general information-collecting devices and data which is requested will be only that relevant to the granting of a variance or exemption.

- A single public hearing may be held to consider cases to review variance applications for a number of systems and to adopt implementation schedules for both variances and exemptions for more than one system.

- EPA will operate its program for variances and exemptions through its regional offices except for the provision of an overall program guidance and, to some extent, the review required by the law, which will remain Headquarters activities. Determination on available alternative treatment techniques will also be made by Headquarters. Regional Administrators will be responsible for assisting States in the development of programs, initial reviews of variances and exemptions granted by states and in developing and maintaining adequate recordkeeping systems. In states without primary enforcement responsibility, regional offices will operate an EPA program for variances and exemptions.

DRAFT

Local Utility Impact and Regionalization

Introduction

The ultimate responsibility for complying with the standards set in the Safe Drinking Water program lies not with EPA or the States but with the local utilities that provide the nation's drinking water. At the same time, EPA recognizes the heavy burden which the Act may place on some local utilities and water suppliers and intends to develop its programs so as to reduce, to the degree possible, the difficulties they will face in complying with the new standards.

The Act, nevertheless, makes clear that local utilities will be responsible for providing any treatment facilities necessary to reach the standards contained in the regulations and for monitoring required by the regulations except as required by State law. Moreover, local water suppliers will be responsible for obtaining the resources which will be needed to meet the program's requirements. EPA does not forsee any direct subsidies to local water suppliers, nor any construction grants program, and expects in most cases that traditional sources of funds such as charges for water and services, municipal bonds and so forth will be utilized to provide suppliers with necessary resources.

The Existing Situation

The Community Water Supply Study of 1969-70 (our most recent data) showed that a large percentage of local utilities and water suppliers will most likely face significant problems in meeting the requirements of the new regulations. Tables 3-4, taken from the CWSS, give some indication of the severity of the existing problem. As the tables show, a significant number of

DRAFT

water systems have been unable to comply with both the mandatory and recommended Public Health Service standards. Moreover, a majority of systems of all sizes were not meeting the monitoring criteria set in the PHS regulations. It should be noted that in all cases, the most severe problems are found among the smaller systems.

Supplying safe water

An evaluation of the information and data currently available to EPA suggests that a significant number of local water suppliers may face serious financial problems in meeting the standards required in the interim NPDWR.

Because large portion of systems do not currently provide for the treatment which will prove necessary to remove many of the contaminants listed in the NPDWR, there will be a substantial need to upgrade facilities. Many systems will need to invest significant sums of capital because of the high cost of some of the treatment techniques.

While most governmentally owned systems have access to the municipal bond market, a recent EPA analysis has shown that because of the nation's economic situation, this source may prove increasingly unreliable in the relatively near future. Investor owned systems are also likely to face problems in this area because of high interest rates and the difficulty of obtaining investment capital through the private market.

DRAFT

TABLE 3

SUMMARY OF WATER QUALITY EVALUATION

	Population Group Served			
	Less Than 500	500-100,000	Greater Than 100,000	All Population
Number of Systems:	446	501	22	969
	Percent of Systems			
Evaluation of Systems:				
Met Drinking Water Standards	50%	67%	73%	59%
Exceeded recommended limits	26%	23%	27%	25%
Exceeded mandatory limits	24%	11%	0	16%
Note: Study Population in each Group in Thousands	88	4,652	13,463	18,203

TABLE 4

MEETING BACTERIOLOGICAL MONITORING REQUIREMENTS

	Population Group Served			
	Less than 500	500 to 100,000	Greater than 100,000	All Population
Number of Systems:	466	501	22	969
	Percent of Systems			
Met Criteria	4%	15%	36%	10%
Did not meet criteria	96%	85%	64%	90%

Source - Community Water Supply Study of 1969-70

Reproduced from best available copy.

DRAFT

There are some steps which EPA may take to help reduce the financial burden water suppliers will face. EPA has authority under the SDWA to provide for loan guarantees up to $50,000 to small drinking water systems.[1/] The agency's regulations will propose allowing utilities to use the loans for a variety of purposes, including:

- upgrading or expanding existing facilities in order to meet the NPDWR;
- providing assistance in developing regionalized systems; Public water systems will be encouraged, where appropriate, to "pool" their loans to develop regionalized facilities which might be shared by all.
- developing new water supply sources.

EPA may propose that loan guarantees be provided to those communities which can demonstrate that no other source of funding, (such as FHA, Appalachian Regional Commission, etc.) is available. Most important! loan guarantee applicants will be required to demonstrate that the guarantee is not being sought in order to avoid charging consumers a reasonable price for the water.

The NPDWR and the State program regulations clearly recognize that some utilities and water suppliers will not be in compliance with the maximum contaminant level standards immediately. EPA regulations will allow compliance to be achieved in an orderly, step by step basis. So long as the public health is

1/ For the purpose of loan guarantees, small drinking water systems are likely to be defined as those serving less than 5,000 permanent population.

DRAFT

protected, EPA will encourage states to utilize a high degree of flexibility when dealing with local water suppliers and to take into account the particular problems these systems may face in meeting the regulations.

Regionalization

Another approach which EPA considers to be a viable solution for certain water systems for meeting the drinking water standards is regionalization. While it is recognized that regionalization may be a reasonable alternative only under certain limited conditions, it may prove to be a valuable alternative for some systems, particularly because regionalization does not necessarily have to be synonymous with total structural consolidation.

In many places, regionalization can reduce the cost and/or improve the quality of water supplied. While regionalization customarily involves at least some structural links between systems, such as interconnecting pipelines, significant savings may be possible when merely the management of systems is combined. This allows activities such as operation, maintenance, monitoring, financial and administrative management, overhead, etc., to be carried out by a single staff.

Many factors affect whether there is a cost saving, in both structural and non-structural regionalization. These factors include: the number of service areas, the distance between them, the relationship between distance and flow, future population growth, hydrologic and topographic features, the type of treatment employed, labor costs, and even the particular functions to be combined (i.e., impoundment, conveyance, treatment, distribution, operation and labor, and management).

DRAFT

Despite the impact of local site characteristics on economies of scale, regionalization is a desirable alternative in many areas for the following reasons:

- Small systems, for which advantages of structural and non-structural regionalization are greatest, are much more likely to be in violation of drinking water standards and thus be required to make extensive alterations in their facilities.
- Since economies of scale are generally greater for impoundment facilities than they are for treatment, regionalization will be advantageous where it is necessary to tap new sources rather than merely upgrade existing treatment processes.
- Apart from economies of scale, small communities can benefit considerably from pooling capital resources, thereby obtaining a more favorable market for their bonds.

Even where its benefits are apparent, some important barriers to regionalization remain:

- Fear of relinquishing control over water supply to a larger political body.
- Disputes over how control of the regional entity and cost of facilities are to be shared by participating localities.
- Genuine preference by a community for its present source of supply, e.g., dislike of flouridated water.

EPA Policy on Regionalization

EPA's policy with respect to regionalization be guided by the following points:

- EPA will encourage regionalization wherever it is clearly appropriate, however, the Agency does not intend to dictate any regionalization plan to any public water supply or group of supplies. The benefits and costs of structural and/or management regionalization are local decisions, and the EPA will not interfere with those decisions.
- EPA expects that prior to (or simultaneous with) applying for variances and exemptions based on cost or raw water source, smaller systems, especially those serving less than 5,000 people, will explore opportunities for regionalization.
- In guaranteeing loans, priority may be given to applications from small systems if they involve the merging of ownership, management or operations of supplies for more efficient and economical service.

DRAFT

- The States should assess the potential for regionalization (including integration of waste water treatment and water supply), and where cost-savings would be significant, should attempt to provide a climate conducive to regionalization including the necessary legal authorization.

- Within the limits of its resources, EPA will provide technical assistance and support to States and communities which pursue regionalization and which can significantly benefit from doing so.

- EPA intends to implement fully the provision of the SDWA for extending by two years the compliance period for systems holding exemptions if they have "entered into an enforceable agreement to become a part of a regional public water system..."

Monitoring and Laboratory Facilities

With the adoption of the interim NPDWR, most drinking water systems will be required to increase significantly the frequency of monitoring. Moreover, many will begin for the first time to test for many organic, inorganic and radioactive contaminants. The step up in monitoring will be reflected in the significantly increased costs. Table 5 provides information on the specific costs which public water systems of various sizes may face in complying with the new regulation.

EPA does not intend to provide direct financial assistance to local utilities and water suppliers to cover routine costs of monitoring; however, several steps are being taken to help reduce the costs which these suppliers may incur, such as:

- EPA is currently reviewing the level for frequency of monitoring in the NPDWR. In particular, EPA is considering providing for less frequent monitoring for smaller systems found to be in violation of certain constituent levels where it can be shown that reductions in frequency are not detrimental to the public health. EPA is especially concerned about the substantial response from the public and from state and local officials on the problems of overly demanding monitoring levels and will attempt to modify the proposed standards so long as any changes will still be protective of the public.

- EPA will continue and may expand its program for providing information to utilities and to laboratories on improved methods of performing monitoring. In particular, EPA

TABLE 5

ESTIMATES OF COSTS OF MONITORING

POPULATION OF SYSTEM	INORGANICS Single Test	INORGANICS Average Cost Per Year	ORGANICS Single Test	ORGANICS Average Cost Per Year	PLATE COUNTS Single Test	PLATE COUNTS Average Cost Per Year	COLIFORM Single Test	COLIFORM Average Cost Per Year	TOTAL AVERAGE COST	TRIHALOMETHANES Single Test*	TRIHALOMETHANES Average Cost Per Year*	CHROMIUM Single Test*	CHROMIUM Average Cost Per Year*	COLIFORM Single Test*	COLIFORM Average Cost Per Year*
Non-Delivery System	$150	$30	$100	$20	$10	$20	$5	$100	$170	$10	$20	$10	$20	$6	$120
100	Surface $150	150	100	100	10	10	8	192	452	10	20	10	20	8	240
	Ground $150	50							252	10	20	10	20		
101 to 500	Surface $150	150	100	100	10	10	8	200	460	10	20	10	20	8	240
	Ground $150	50							260	10	20	10	20		
501 to 1,000	Surface $150	150	300	100	10	10	8	200	1070	10	20	10	20	8	240
	Ground $150	50							870	10	20	10	20		
1,001 to 10,000	Surface $150	150	300	100	10	10	8	1920	2160	10	20	10	20	8	240
	Ground $150	50							1960	10	20	10	20		
10,001 to 50,000	Surface $150	150	300	100	10	10	8	1440	1180	10	20	10	20	8	240
	Ground $150	50							1180	10	20	10	20		
50,001 to 100,000	Surface $150	150	300	100	10	10	8	720	1180	10	20	10	20	8	240
	Ground $150	50							780	10	20	10	20		
100,001 to 1,000,000	Surface $150	150	300	100	10	10	8	15,360	15,680	10	20	10	20	8	240
	Ground $150	50							15,680	10	20	10	20		

SOURCE: ENCO, CAMBRIDGE, MASS.

* Per contaminant in violation

Reproduced from best available copy.

DRAFT

will attempt to publicize information on low cost monitoring techniques which utilities and laboratories may employ.

Availability of Laboratory Facilities

In order for water suppliers to meet the requirements of the interim regulations, there also must be an adequate number of qualified laboratories, capable of performing the monitoring tests. EPA currently has a program for certifying State bateriological laboratories and for reviewing chemical laboratories on request. EPA also encourages State personnel to certify other laboratories in their states. Presently, there appear to be a large number of laboratories capable of testing for biological contamination and, at least for larger and medium sized water utilities, there will probably be no significant problem.

For smaller utilities and non-community systems, however, a sufficient capacity may not exist. More importantly, even many large utilities do not presently have access to laboratories qualified to perform chemical monitoring. Less than two thirds of the states appear at this time to have laboratories which have been certified as capable of testing for all of the chemicals which will be listed in the interim regulations.

EPA believes that the decision on whether to expand State laboratory capability[1/] or to depend on the expansion of private labs should rest with the State. It is nevertheless EPA's policy that users should bear the ultimate costs of providing safe drinking water and hence individual drinking water systems should be responsible for

1/ An analysis of a sample of State monitoring programs suggests that over 85% of states currently pay for 50% or more of the costs of laboratory services for municipal systems.

DRAFT

monitoring costs. Regardless of the decisions of the States, EPA may take certain steps to assist states, local governments and public water suppliers in complying with the monitoring requirements including:

- Expanding the certification program, particularly for chemical monitoring, so that more state officials become qualified to perform certification in their own states.
- Expanding the EPA training program or finance training programs which might be conducted in universities, state facilities or federal laboratories where new monitoring and testing techniques might be taught.
- Develop, with state assistance, a directory of all existing public and private laboratories.
- Consider establishing the Analytical Reference Service which would provide a method of validating recommended testing techniques.

Training and Energy Requirements

EPA will, as resources become available, expand its management and technical training programs so as to help assure that an adequate supply of trained manpower exists to operate and administer drinking water utilities. To accomplish this, short term training programs for utility and laboratory personnel will be developed and EPA will provide information to colleges, universities and technical schools on the need for programs for instruction in the field of water supply.

EPA policy on the manpower and training requirements of the SDWA program has not yet been fully developed. Public comment is requested so that we may determine its priority relative to all of the many requirements placed on the limited funds available.

EPA intends to give serious attention to the potential energy impacts of the new standards; both as they may affect the nation's overall consumption of energy and the ability of local water suppliers to afford increased energy costs. The interim NPDWR do not currently

DRAFT

appear to require significant increases in the amount of energy which will be necessary to provide treatment by local utilities. EPA will, however, analyze the possible effects of other treatment techniques (e.g., activated carbon) which might be needed at some later date.

Finally, EPA in general expects non-government owned utilities to be treated equally with publically owned facilities in terms of technical assistance, access to laboratories, loan guarantees, and so forth, except as may be required by law. EPA does not view the Safe Drinking Water Act as a tool to be used to force investor owned utilities into government operation nor conversely to pressure local governments into taking over private water companies.

EPA resources devoted to the Safe Drinking Water Program are by necessity limited. Public comment as to the priority of the above actions is necessary before we can decide which are most useful to the States and to public water suppliers.

Relationships between the SDWA and the Federal Water Pollution Control Act (FWPCA)

There are several areas of potential interface between the SDWA and the FWPCA. These include:

- FWPCA water quality standards include the designation of beneficial uses, including the quality of water needed to serve drinking water supplies.
- There is also a relationship between the toxics standards developed under §307 of the FWPCA and the regulations developed under the SDWA.
- NPDES permits issued under the FWPCA control the release of pollutants to many of the same waters used as public water supplies.
- Some forms of underground injection may be controlled under the SDWA and through NPDES permits; the relationships need to be examined.

- o Planning under §208 of FWPCA requires consideration of the protection of both ground and surface water quality.
- o Research programs must explore the unknown along the whole range of contaminant production, transport, treatment, and toxicity.

These and the other SDWA and FWPCA programs, such a: technical and financial asssistance, training, etc., should be treated as two programs that have significant areas where the work can be coordinated. These areas require careful treatment, more detailed can be handled in this paper. FPA will publish a strategy on the relationships between SDWA and FWPCA in the near future. EPA plans to manage its water pollution control and drinking water programs concurrently, giving each the priority attention it deserves.

DRAFT

Chapter 5 - Protection of Underground Sources of Drinking Water

I. Underground Injection Control Program

Scope of Ground Water Use and Problems

Ground water is an immense potential source of drinking water. It is estimated that the ground water is 2,000 to 3,000 times as plentiful as all surface water combined. Although much of this ground water is brackish, it is estimated that it constitutes about 97 percent of all fresh water supplies in the United States. It is also estimated that 100 million Americans rely on underground sources for their drinking water. This constitutes a reliance on ground water by approximately a third of all public supplies and 95 percent of all rural domestic supplies.

Ground water is found in water bearing strata (aquifers). The ground water flow rate is generally quite slow, ranging from five feet per day to five feet per year. For much of the the country only episodic information is available on the extent of ground water contamination. There are only a few areas, such as the Edwards Aquifer in San Antonio, Texas, where there is adequate data to determine the total ground water quality.

Ground water contamination comes in many forms and from many sources. One study being done for the EPA by the National Well Water Association identifies twenty-one sources of contamination (See Table 6) The severity of contamination from these sources varies from State to State.

11. B

DRAFT

Table 6 - Sources and Causes of Ground Water Contamination

1. Landfills, dumps, and excavations - significance of hazard is dependent upon the nature of deposit, disposal means, and local geologic conditions

2. Wastepiles and stockpiles - may lead to contamination due to infiltration from salt supplies (for winter road spreading), certain ore stockpiles, etc.

3. Animal feedlots - infiltration of wastes from feedlots can result in excessive concentrations of nitrate, chloride, ammonia, bacteria, etc.

4. Fertilizers - mainly a pollution problem for surface water, but they have resulted in ground water contamination

5. Pesticides - constitutes a potential problem for shallow aquifers or where pesticides are applied near "wells"

6. Accidental spills - spills of toxic substances have posed immediate health hazards for nearby water supplies

7. Wastewater sludges and effluents - sludge and effluents disposed by various means (land application, evaporation pits) can result in ground water contamination

8. Highway salting - can cause serious problems where excessive amounts are used to melt snow and ice on highways

9. Polluted surfacewater - can result in infiltration and direct interchange to aquifers from polluted surface waters (addressed by P. L. 92-500)

10. Air pollution - could be considered a form of land spreading of waste (controlled by the Clean Air Act)

11. Holding ponds and lagoons - widely used by industry and municipalities; poor construction or operation can result in infiltration and consequent ground water contamination.

12. Septic tanks - potential for contamination is dependent on population density, construction methods, and soil type

13. Storage transmission facilities - contamination results from leakage from sanitary sewers, buried gasoline tanks, etc.

Table 6 con't

DRAFT

14. Drainage wells and pumps - often used to dispose of surface runoff, especially in areas with little natural surface drainage

15. Artificial recharge - used to combat salt water intrusion and subsidence (declining water table) by percolation-infiltration or other means; can result in contamination if not properly performed or monitored

16. Disposal wells - includes brine re-injection wells and industrial waste injection wells; associated ground water problems reported in Florida, New York, Oregon, Idaho, and Ohio

17. Secondary recovery of oil and gas - poor well design and/or construction of the wells can result in contamination of the fresh water aquifer

18. Water supply wells - contamination can be caused by improperly constructed or abandoned wells

19. Exploration holes and abandoned wells - abandoned oil, gas, and coal exploration and production wells have created considerable ground water contamination problems (e.g., Michigan and Pennsylvania)

20. Mining - contamination from highly mineralized and/or acidic mine leachates may be generated long after mining operations have ceased

21. Ground water development (pumping) - overpumping of fresh water aquifer can result in salt water intrusion

DRAFT

Summary of Part C of the SDWA

Part C of the Safe Drinking Water Act is intended to further protect the Nation's drinking water supplies by providing safeguards for underground sources of drinking water. The Act strongly emphasizes the prime role that the States are to play in implementing the Act.

The Act calls for EPA to establish regulations for State underground injection control (UIC) programs, and provides for grants to the States to help in their implementation. These State program regulations must include a program for control of "underground injections" by means of permitting (or rule-making), monitoring, and enforcement. In the case where a State is not certified by EPA to assume enforcement responsibility for the UIC program, EPA must ensure that a Federally "prescribed" program is implemented in that State.

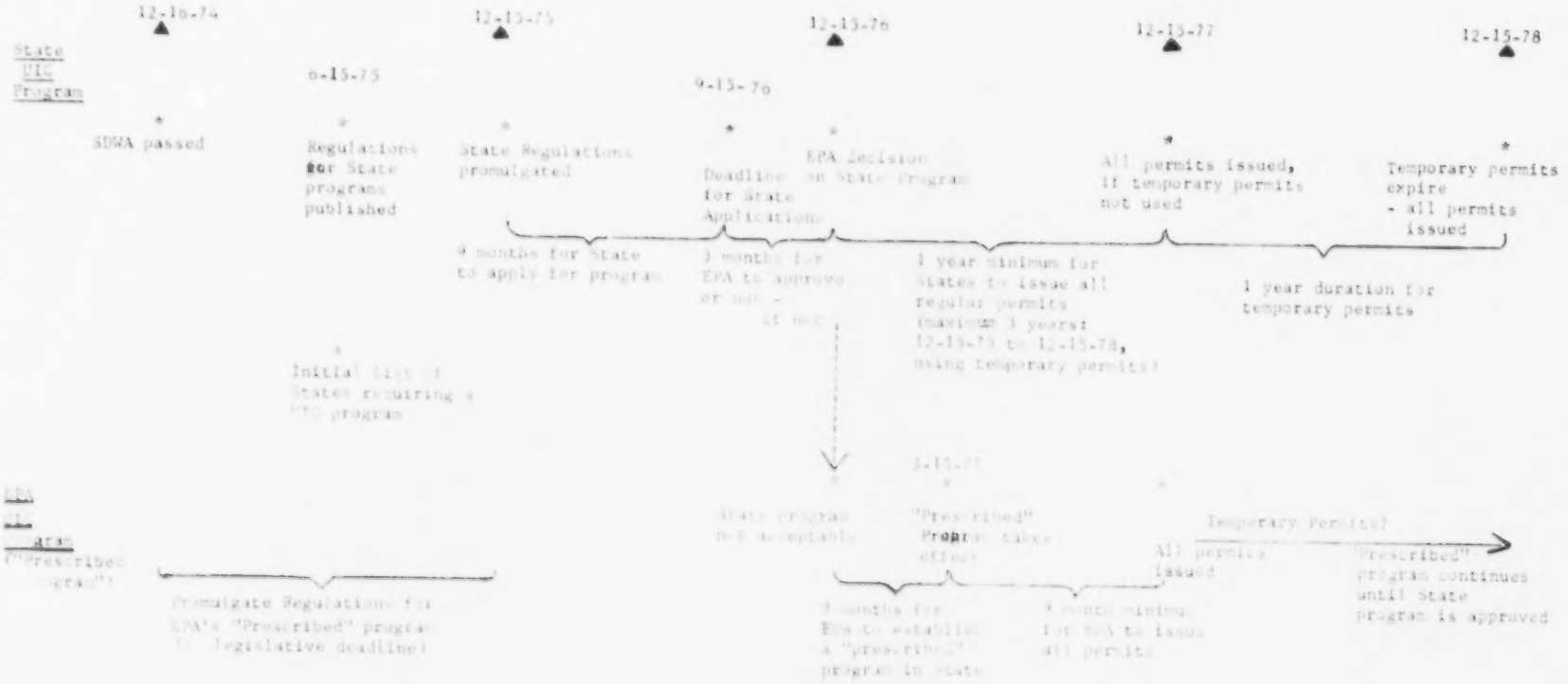
The Act establishes a very restrictive time frame for permit issuance. All required permits must be issued within three years of the passage of the Act (deadline 12/15/77). However, the Act does allow the States to issue less stringent "temporary" permits (of one year duration) for existing underground injections if all permits are not issued by the above date (See Figure 2).

Part C also establishes a program of more stringent control in areas relying on groundwater as a "sole or primary source" of drinking water.

Goals of the UIC Program

EPA's basic goals and policies in implementing Part C of the SDWA are essentially the same as those stated earlier in this

FIGURE 2 - TIME FRAME OF UIC PROGRAM


12-16-74
12-15-75
12-15-76
12-15-77
12-15-78
State UIC Program
SDWA passed
6-15-75
Regulations for State programs published
State Regulations promulgated
9-15-76
Deadline for State Applications
EPA Decision on State Program
All permits issued, if temporary permits not used
Temporary permits expire - all permits issued
9 months for State to apply for program
3 months for EPA to approve or not -
1 year minimum for states to issue all regular permits (maximum 3 years: 12-15-75 to 12-15-78, using temporary permits)
1 year duration for temporary permits
Initial list of States requiring a UIC program
EPA UIC program ("Prescribed program")
Promulgate Regulations for EPA's "Prescribed" program (legislative deadline)
State program not acceptable
"Prescribed" Program takes effect
3 months for EPA to establish a "prescribed" program in state
4 months minimum for EPA to issue all permits
All permits issued
Temporary Permits?
"Prescribed" program continues until State program is approved

DRAFT

paper for the rest of the program:

- Our principal goal is to protect the public health to the extent feasible, giving due consideration to the economic and social costs which might result.

- We intend to adopt a flexible, step-by-step approach to the implementation of this program, and desire that the States play the principal role in its implementation as defined by Congress in the legislation.

- The bulk of EPA's activities in this area will be conducted by the Regional Offices, and not by headquarters, with the exception of research and regulation-preparation. These headquarters activities, however, must be closely coordinated with the Regions and the States.

- Since resources are limited in this program area, EPA must utilize Federal and State resources in ongoing programs wherever possible.

Objectives of the UIC program:

Chapter three of this strategy details the general goals of the SDWA (including the UIC Program) and outlines the objectives of the water supply section. The objectives of Part C (protection of underground sources of drinking water) of the Act are:

(not listed in order of priority.)

- Promulgate regulations and guidelines necessary to implement the SDWA in a timely manner.

  - publish and promulgate State program regulations
  - publish a list of the States requiring a UIC program
  - publish and promulgate regulations for the Federally prescribed program
  - publish and promulgate procedural regulations for determination of sole source aquifers, Federal review of projects, and well injection permitting (no deadline established in the Act).

- Promote an effective Federal/State partnership in the UIC program by certifying States to assume authority for UIC.

- Provide technical assistance to the States on permitting, inspection, monitoring, reporting, and enforcement

DRAFT

procedures.

- Initiate and implement research and demonstration projects.
  - determine health effects of groundwater contaminants
  - investigate control procedures for the various forms of groundwater contamination

- Establish a permitting and compliance program for underground injection in all States requiring one, based on the State lead role wherever possible.

  - certify States to implement UIC programs
    - issue permits for underground injection wells and temporary permits if necessary
    - monitor and enforce against injection well violations

Strategy Overview - Policy Issues

This section addresses the most pressing and significant policy issues facing the program:

1. Extent of Protection under Part C - What is well injection?
2. Step-by-step Program Implementation
3. Relation of UIC and P.L. 92-500

Issue #1

Extent of protection under Part C -- What is well injection?

A major issue in the implementation of Part C of the Act concerns what is to be regulated under the State and "prescribed" program regulations. The Act calls for a program to protect underground sources of drinking water by requiring permits for "underground injection." "Underground injection" can be defined in a variety of ways.

Section 1421(b)(1)(A) of the Act prohibits any underground injection which is not authorized by permit or rule. Underground

DRAFT

injection in turn is further defined as "the subsurface emplacement of fluids by well injection" [Section 1421(d)(1)]

There are generally three different options for defining what is to be controlled in the UIC program:

1. Broad Definition. Define "well injection" very broadly (including pits, lagoons, etc.) and require all "well injections" to be permitted.

2. Narrow Definition. Define "well injection" as the "classical" waste disposal well, including brine and secondary recovery (the use of fluids or other means to flush more oil or gas to the earth's surface), and require only these to be permitted.

3. Mixed Definition. Define "well injection" as a practice consisting of several categories of wells (including all the sources of contamination of Option 1), but do not require permits for all categories.

The major difference in the various definitions of well injection is the flexibility of the "by rule" versus the permitting approach. The permitting approach would require the States, and EPA if necessary, to establish an adminstrative process of gathering data, writing a draft permit, issuing a final permit, and re-issuing a permit periodically for each "well" in that State. If an injection well was broadly defined to include pits, lagoons, and drainage wells, hundreds of thousands of permits would have to be issued which would place a very resource intensive burden on the States.

The "by rule" approach allows the State greater flexibility in implementing the UIC program without requiring the detailed administrative procedures of permitting. Rather than issue a permit for each "well", States would be required to have regulations (or rules) that require control procedures to be implemented in an appropriate time frame.

DRAFT

These would probably result in more flexible procedures and time frames than required for permits, thereby preventing the administrative nightmare of permitting

Option 1 - A Broad Definition of Injection Well

This option is generally supported by the House Committee on Interstate and Foreign Commerce report on the Safe Drinking Water Act (July 10, 1974), (p. 31):

> "The definition of 'underground injection' is intended to be broad enough to cover any contaminant which may be put below ground level and which flows or moves, whether the contaminant is in semi-solid, liquid, sludge or any other form or state."

The Committee placed only the following caveat on the definition (p. 31):

> "While the Committee does not intend this definition to apply to septic tanks or other individual residential waste disposal systems, it does intend that the definition apply to a multiple dwelling, community, or regional system of injection of waste."

This option would therefore include under "well injection" any possible source of ground water pollution (e.g., any man made structure, artificial excavation, natural opening, or other means used for underground injection).

The advantage of this option is that it provides for a greater authority to regulate the possible contamination of underground sources of drinking water. However, a broad definition could subject the EPA to extensive criticism from industry, municipalities, and individuals that do not consider themselves to be regulated by the permitting provisions of this Act. Bluntly, EPA could be accused of "calling a lake a well". In addition to the legal problems, there

DRAFT

would also be enormous administrative problems. A broad definition of well injection, without any flexibility for the States to implement it, would place a huge administrative burden on the States to issue the number of permits required. This task could be so great that many, if not all, States would refuse to accept the EPA certification of their UIC program. The EPA would then be faced with the enormous task of implementing a nation-wide permitting program for hundreds of thousands of permits.

Option 2 - Narrow Definition of Well Injection

This option would define "well injection" as the "classical" well used for the injection of waste products (i.e., a drilled hole, reinforced with casing used to dispose of waste products), of which there are approximately 380+ identified nation-wide.

The advantage of this option is that it probably would not be contested by the parties to be controlled, and the permitting program would be fairly easy to administer since so few permits (380) would be required.

There are several disadvantages to this option. EPA could be considered negligent for not implementing the will of Congress to protect underground sources of water. Research indicates that the "classical" disposal well is not at this time the major source of contamination to aquifers. Regulation of only deep industrial waste disposal wells therefore would, therefore, not be controlling the main sources of aquifer contamination.

Option 3 - Definition of Well Injection as a Practice With Several Categories

A third option is to incorporate the better aspects of both the broad and narrow definitions, that is, the more defined, legally defensible,

DRAFT

and administratively manageable aspects of the narrow definition and the greater ground water protection aspect of the broad definition. This could be accomplished by defining the well injection practice as consisting of several categories of "wells", each requiring different control procedures. This would allow for varying degrees of State flexibility in the implementation of each category. This categorization could take the following form:

> Category I - "Classical" waste disposal wells (exclusive of brine re-injection and secondary recovery operations) must be permitted.
>
> Category II - Brine re-injection and secondary recovery wells (associated with oil and gas production) must be permitted for new construction. Existing brine and secondary recovery wells that are already permitted or otherwise controlled by the State will not have to be permitted again under this Act, if the State agency certifies that these wells do not endanger the public health. These wells could be controlled by rule. The State agency may also wish to examine older or other suspect wells for new permits under the Act.
>
> Category III - Other wells - major sources of contamination of ground water (e.g., ponds, lagoons, ground pits, quarries, sinkholes, drinking wells, etc.) that are not required to be permitted. States would be supplied with technical assistance on the various measures available for control of contamination from these sources. After study, States with major problems with these "wells" could negotiate with the EPA Regional Administrator to determine appropriate control procedures (e.g., by rule) and time frames for control that would be appropriate.

This third option allows EPA to establish an incremental program of UIC for those major sources of ground water contamination listed under Category III. For example, the first phase of UIC (1 to 2 years) would address the Category I and II permitting program as described

DRAFT

above. The second phase (3-10 years) would be concerned with establishing a control program for Category III wells that are found to be major sources of contamination in each State. These controls would be effected by rule, and would not have to be implemented until three or more years after the State was certified.

A separate category for brine re-injection (associated with oil and gas production) and secondary recovery wells is necessary to ensure that energy production is not impeded unless it results in the contamination of underground drinking water sources (as mandated by Section 1421(b)(2)). There are approximately 100,000 brine and secondary recovery wells nation-wide. The permitting of all these wells by 1977 or 1978 would pose a huge burden on the States or EPA. Consequently, the more flexible approach of Category II is more appropriate.

Category III is intended to be more flexible in implementation than the first two categories because it includes many sources of goundwater contamination that sometimes are either difficult to control or are useful to the local community. The artificial recharge of aquifers with waste water to combat saltwater intrusion or subsidence (declining watertable) is a prime example. The EPA must therefore allow for such local situations, and allow local communities to utilize the filtration capacity of the local soils. Category III allows for this flexible approach.

Issue #2

Strategy for Step by Step program implementation

As stated in the earlier sections of this strategy dealing with public water supply systems, the successful implementation of the

DRAFT

SDWA is dependent on the willingness of the States to assume the lead role. This section deals with the Step by Step option for ensuring that States are capable of being certified. Step by step implementation is considered from the two following approaches, which can be implemented separately or jointly:

A. Staggered listing of the States requiring a UIC program;

B. Prioritized requirements for certification of States' UIC program.

A. Staggered listing of states

Section 1422(a) requires that the Administrator publish within six months of the passage of the Act a list of States that require a UIC program (See Figure 2). The States on that list then have nine months after the promulgation of the State program regulations to apply for control authority under the SDWA. If some of these States do not apply or EPA determines their program to be inadequate, then EPA must institute a UIC program in those States.

If EPA promulgates a list of all 50 States on June 15, and a large number of these States are not certified to assume the program, then the Agency will be faced with the enormous problem of immediately establishing a UIC program for all of these non-certified States. This situation would not only be difficult for EPA to handle, but it would be a clear violation of the intent of Congress that the States should take the lead role.

The House Committee report (p. 32) suggests that all 50 States should be listed. Section 1422(b)(1)(A) of the Act allows nevertheless for a staggered listing of the States:

DRAFT

"Each State listed under subsection (a) shall, within 270 days after the date of promulgation of any regulation under section 1421 (or, if later, within 270 days after such State is first listed under subsection (a)) submit to the Administrator an application..."

In applying both the Committee's intent that all 50 States be included and the Act's flexibility to stagger the listing of the States, EPA could propose a strategy of listing all 50 States in stages, perhaps ten per year for five years. This would allow EPA to establish criteria (number of deep disposal wells, worst ground water quality, etc.) for listing the ten States most needing a UIC program, followed the next year by the next ten, etc. At the end of the specified period, in this case five years, all 50 States would be listed and would have a UIC program.

If a State or citizens of a State were displeased because individual States were not listed the first year, EPA could establish beforehand a procedure for either State governments or residents to petition to have their State listed as requiring a program earlier than EPA proposes. The criteria used in determining which states would be listed would be available for public review.

The value of this policy is that it allows EPA to concentrate limited resources in areas such as technical assistance to the States with the highest priority need for a UIC program, rather than spreading the effort among all 50 States immediately. Furthermore, if some States still might not apply nor have an acceptable program, EPA would be able to stagger its own workload required to implement its prescribed program over five years or more, instead of all at once in 1977.

DRAFT.

With the Agency's presently limited resources in this area, the simultaneous non-certification of even some of the States could make the implementation of the Act very difficult.

This ranked State list option would likewise be beneficial for the States. The limited first year State grants could be divided among those ten or more States on the first list, thereby granting more funds initially to those States with the most critical ground water problems. As more States are listed, the per-State share of grant funds would decrease (contingent on continuing, constant funding) but this decrease would occur only as States with decreasing ground water problems came aboard.

B. Prioritized requirements for State UIC program certification

This section deals with the policy option of step by step State implementation of the SDWA (discussed earlier in the public water supply section of this strategy) as it relates to the UIC program.

The requirements for State certification of the UIC program are discussed in Section 1421(b)(1) of the Act. The requirements for State certification are rather loosely defined, and fall into two main classes, (1) permitting, which has strict time limits and two forms of issuance (temporary and regular term), or rule-making, and (2) all other requirements (inspection, monitoring, recordkeeping, and reporting requirements) which are not elaborated upon in the Act.

A step by step implementation policy for State certification, which recognizes differences among the States, can be applied to both classes. The permitting program would follow the "mixed"

option described above combining permiting and rulemaking for UIC.

The other, less explicitly defined requirements of the Act allow for a greater amount of flexibility in their implementation. For the first few years of the program, States could be required, for example, to inspect only the major or most suspect wells. When the workload has leveled off, a gradual, more intensive inspection program for other major sources of contamination could be started.

This same prioritized approach could be applied to monitoring, recordkeeping, and reporting. (See the following examples).

An Example of Step-by-Step Program Implementation for

Category I Wells (Waste disposal wells)

Monitoring (all time periods calculated from the date of State program certification--See Chart A)

Within first year of certification	- Require self-monitoring reports monthly (or quarterly) from all permittees.
Within 3 years	- Initiate a program of test wells for all potentially problem permittees.
Within 5 years	- Require test wells for all new well disposal projects that have a potential for groundwater contamination.

Inspection

1st year	- Initial program design period, most resources directed towards establishing a permitting program.
2nd year	- Initiate a program of inspections on major or most suspect wells.
Within 3 years	- Require yearly inspections on all suspect wells.
Within 5 years	- Require routine inspections (varying intervals, one year minimum) on all major and suspect wells.

Another advantage of the step-by-step approach is that it takes into consideration that many States already have an existing program

DRAFT

for the protection of ground water. These programs naturally vary, however, as to the degree and extent of the control of the various sources of aquifer contamination. The following list illustrates the extent of present State waste disposal well control programs:

- 14 States prohibit deep waste disposal wells
- 23 States require permits for waste disposal wells
- 13 States have no control policy

Within the States there are a variety of agencies, with differing levels of resources, responsible for the various forms of well injection. Florida, for example, has three state-wide and five regional agencies involved in the control of industrial disposal wells alone. There naturally are several more agencies in each State involved in controlling the other major sources of ground water contamination.

The step-by-step approach allows the States time to develop an integrated ground water control program that covers the major sources of contamination in each State. In the meantime, however, EPA must work with the States to agree to either (1) one State agency to act as the lead agency for State/EPA negotiations, or (2) grant and workload agreements with all the major State agencies involved.

Issue #3

Relationship of the UIC program and P.L. 92-500

Even with the maximum certification of States, EPA is still going to be hard pressed for resources. EPA should therefore strive to use existing Agency programs to assist in the implementation of the UIC program.

DRAFT

Before the passage of the SDWA, the EPA was involved in matters related to ground water contamination mainly through various provisions of P.L. 92-500. Some of these provisions (e.g., research and reportmaking) are discussed earlier in the strategy. These P. L. 92-500 provisions relevant to UIC fall into two main areas: (1) permitting under Section 402 (NPDES) and (2) planning mechanisms.

Under the authority of Section 402 of P.L. 92-500, EPA and the States have permitted a few hundred municipal and industrial injection wells (121 in Texas and 77 in Michigan) with which there was an associated surface water discharge. However, P.L. 92-500 permitting authority is restricted from the control of brine re-injection and secondary recovery wells, whereas the SDWA is not so limited. The UIC permitting program will be designed so as not to require a re-permitting process unless the existing NPDES permits are determined to be inadequate to prevent the endangerment of drinking water sources.

The SDWA has no planning provisions similar those contained in P.L. 92-500 for the control of aquifer contamination. EPA should, therefore, consider utilizing planning mechanisms provided under P.L. 92-500 which are related to ground water protection. The major planning provisions of P.L. 92-500 related to the SDWA are:

> Section 106(e). Beginning in fiscal year 1974 the Administrator shall not make any grant under this section of any State which has not provided or is not carrying out as a part of its program--
>
> (1) the establishment and operation of appropriate devices, methods, systems, and procedures necessary to monitor, and to compil

DRAFT

> and analyze data on (including classification according to eutrophic condition), the quality of navigable waters and to the extent practicable, ground waters including biological monitoring; and provision for annually updating such data and including it in the report required under section 305 of this Act;

Another major planning processes of 92-500 is the § 208 Areawide plan. The §208 plans are intended to be the focal point for the control of point and non-point surface water pollution. However, 208 plans are also intended to address ground water problems.

> Section 208(b)(2). Any plan prepared under such process shall include, but not be limited to--
>
> (K) a process to control the disposal of pollutants on land or in subsurface excavations within such area to protect ground and surface water quality.

With this broad application to ground water protection, 208 areawide plans should also be designed to be the major planning mechanism for ground water protection. Requirements for UIC permits could be coordinated by the 208 management agency. Furthermore, the 208 mechanism could be used to gather ground water data and to determine what additional control procedures are required to protect each area's aquifer. This will be especially helpful if the well injection definition by category is utilized. Finally, petitions for sole source determination within a 208 area should also be channeled through the 208 process.

The 303(e) planning process should also be applied to the protection of ground water, in that the results of the 208 plans, especially the Statewide 208 plans, are to be incorporated into the 303(e) plans.

This reference to the FWPCA planning mechanism with provisions applicable to the SDWA is not meant to be exhaustive. However, it does illustrate the existing resources the States and EPA have in the water planning area that could be applied to this new Act. EPA is especially interested in getting comments from States and from the public on the desirability of applying these planning mechanisms to the SDWA programs.

II. Sole Source (Section 1424)

Introduction

Section 1424, "Interim Regulation of Underground Injections," poses a potentially enormous administrative burden for the EPA.

Section 1424(e) states that:

> "(e) If the Administrator determines, on his initiative or upon petition, that an area has an aquifer which is the sole or principal drinking water source for the area and which, if contaminated, would create a significant hazard to public health, he shall publish notice of that determination in the Federal Register. After the publication of any such notice, no commitment for Federal financial assistance (through a grant, contract, loan guarantee, or otherwise) may be entered into for any project which the Administrator determines may contaminate such aquifer through a recharge zone so as to create a significant hazard to public health, but a commitment for Federal assistance may, if authorized under another provision of law, be entered into to plan or design the project to assure that it will not so contaminate the aquifer."

Under the broadest interpretation of the broadest provision (1424 (e)) - EPA would be required to review and possibly stop or delay all Federally financially assisted projects for a potentially vast number of areas across the country that rely on ground water for their principal source of drinking water.

DRAFT

Differences between 1424(a) & (e)

Section 1424 of the Act provides for a program of greater protection from contamination for aquifers which are determined to be the "sole or principal" drinking water source for an area. The actual form of protection varies according to which of the two "determination" procedures established in the Act (1424(a) or 1424(e)) are cited when determining that an area is a sole (or principal) source aquifer. These two determination procedures are quite different in their scope and application.

Section 1424(a) calls for a temporary program of permitting all new injection wells in the determined area. This Section was designed to provide interim protection for the residents of a sole source area until the State UIC program was instituted. Once the State's UIC program was certified by the EPA, the State would automatically assume the permitting program for the determined area. Section 1424(a) requires EPA to either determine or non-determine an area 30 days after the petition for determination is published in the Federal Register.

Section 1424(e), on the other hand, calls for a permanent program to review Federally financially assisted projects for the possible contamination of the aquifer in a determined sole source area. It appears that 1424(e) review cannot be delegated to the States. Because of its potential workload requirements, 1424(e) is the main concern of this section of the Strategy. Also, unlike 1424(a), there is no legislative deadline in §1424(e) for determination after the petition is published in the Federal Register.

DRAFT

Current Status

EPA has received two petitions under Section 1424(e) for sole source determination (the Edwards Aquifer in Texas and Long Island). The petition for the Edwards Aquifer was published in the F.R. March 6 for a 60 day period of public comment. A public hearing may be held after this public comment period.

The EPA's actions on these first two petitions represent a major, precedent-setting action. The methodology for designation and the procedures used for review of Federally assisted projects for the first determined area must be well thought out to prevent as much as possible any legal, technical, and administrative problems with these or future petitions.

As mentioned above, there is no exhaustive collection of data on the nation's aquifers. Certain aquifers, such as the Edwards, have been studied in great detail. Its rather confined boundaries, flow, and water quality have been well established. Other aquifers, however, are much more extensive, and less is known regarding their characteristics. A petition for determination of such aquifers would constitute a much greater problem as to whether the area required determinationn or how large an area should be determined.

The tasks to be performed under Section 1424(e) can be divided into two major areas: the sole source determination process and the review of Federal financially assisted projects.

DRAFT

Sole Source Determination

Definitional problems

The determination of a sole source area is complicated by the problem of defining what constitutes a "sole or principal" drinking water source. The Act does not elaborate what constitutes a sole or principal source. The Agency must define how great of a reliance on groundwater is necessary for determination, what size of population must be affected, and how large an area is then to be determined.

A Webster's definition of "principal" would indicate that a major or greater than half reliance would be the minimum criterion. However, it is unlikely that EPA could base its decision on just percentages of population relying on ground water . The availability or lack of other drinking water sources would also have to be considered.

The decision of how large an area to be designated would require an extensive study of the aquifer. An aquifer with a slow and limited horizontal flow would probably require that only a relatively small area be determined. Furthermore, it would probably be more expedient to establish a "boundary" for the area, if (1) the petitioner was required to submit boundaries for the area petitioned and (2) the eventual area of determination was to be drawn, if feasible, along the boundaries of local governments. This would respectively provide an area of focus for the EPA's study and a set of well recognized borders. Local governments should be included in the determination and review process.

DRAFT

Options for determination

The Administrator has two separate options for determination of sole source aquifers. He can either (1) only react to petitions for determination, or (2) intitiate a long term, detailed study of the nation's aquifers to determine if there are areas of the country where a "significant hazard" exists without the benefit of sole source determination.

a. React to petitions. Since the Act does not require the Administrator to initiate determination, this is the administratively "safe" way to handle determinations. The Federal review entailed in the process could develop into a large resource requirement, could involve the EPA in local land use issues, and could result in the delay or stoppage of many Federal projects. This option would limit EPA's involvement. However, this could be viewed as bureaucratic inertia in the face of possible serious contamination problems.

b. Initiation of a nation-wide study. This option would supplement the Administrator's reaction to petitions. Although the study itself could be done largely by contract under Section 1442 (a)(4), (5), (6) and (8), any resulting determinations would naturally require additional resources. The study could be used to determine how extensive the implications of 1424(e) are for Federal involvement in local land-use policies. The results of the study could then be submitted to Congress with a recommendation that 1424(e) be either maintained or revised, to give the States and localities be given a significant legal role in the determination and project review process.

DRAFT

Public comment on these two options is desired before EPA adopts either one.

Project Review

As mentioned in regards to sole source determination, there also are definitional uncertainties in 1424(e) regarding the required project review. Under the broadest interpretation, EPA could be required to review all Federally financially assisted "projects" which could contaminate a sole source aquifer ". . . so as to create a significant hazard to public health . . ."

"Significant hazard" is not strictly defined in the Act or the legislative history. However, it could be reasonably assumed that a significant hazard to public health should be less dangerous than an "imminent and substantial endangerment" (Section 1431) and perhaps equal to the maximum contaminant levels published as part of the National Primary Drinking Water Regulations. It could also be said that since Congress did not equate "significant hazard" with the NPDWR maximum contaminant levels (which establish "safe" drinking water standards), then "significant hazard" standards could be established somewhere between the NPDWR contaminant levels and an "imminent and substantial endangerment" level. This would allow EPA and the States greater flexibility in implementing 1424(e).

Criteria of size, type of facility, and location must be established for those Federally assisted projects which could possibly to create a significant hazard to public health, and which therefore require EPA review.

DRAFT

These criteria must be responsive to the intent of the legislation, but also realistic in the consideration of EPA's review capacity. If the task is greater than EPA's capacity, the Agency will have to return to Congress to clarify the intent of §1424(e).

Proposed Federally assisted projects will then have to be reviewed to determine if the effects of the projects on the sole source aquifer would be enough to prevent the achievement of the "significant health "standards" in the alloted time frame, as amended by variances or exemptions granted to supply systems using the aquifer.

Options for Project Review

EPA has basically two options for project review, either a revision of the established EIS process or a separate project review process. Both options pose considerable problems for the Agency. The thrust of both options must be to place the greatest burden of project review on the other involved Federal agencies. Since these agencies are proposing projects which may contaminate sole source aquifers, they must bear the burden of proving their projects "safe." In order to limit resource demands, EPA's review should be either a "yes or no option," without the design review and change responsibility that the Agency has in the municipal waste water treatment program.

1. EIS Option. This option would require the EPA to revise the Section 309 regulations of the Clean Air Act so as to incorporate those Federal projects that could contaminate sole source aquifers as described above. This option has the advantage of utilizing an existing mechanism for review. However, the EIS approach

DRAFT

may be criticized for not fulfilling the will of Congress and being insufficient to protect sole source aquifers. Since Section 1424(e) does not refer to NEPA, project review could be interpreted to be a much more massive task of reviewing all Federally financially assisted projects.

2. Separate Project Review Option. This option would allow the EPA greater flexibility to establish varying thresholds for Federal project review. This option could be considered more responsive to Congress' intent to review all Federally assisted projects. The Agency could thereby establish broad or narrow thresholds for review without going through the 309 revision process.

A disadvantage of this option is that it would require the EPA to establish an entirely new inter-agency review process. Furthermore, if broad boundaries for project review are used, it will result in a task too immense to be accomplished with EPA's limited resources. It could also result in the delay of many Federal projects and involve the EPA in local land use controversies.

Tasks Necessary to Effect Project Review

Whichever option for Federal project review is chosen, the same three major tasks must be performed:

1. Promulgation of project review standards for use by Federal agencies.

2. Definition of the size, class, and location of projects to be reviewed.

3. Establishment of EPA review procedures and criteria.

DRAFT

Until these necessary review tasks are completed, EPA's decision on the Edwards Aquifer petition will either have to be delayed or the first determination decision, if positive, will have to be implemented in a less than thorough manner.

Recommended Action:

The options available to EPA fall between the two following extremes:

1. EPA determines sole source aquifers only upon petition, and reviews projects through the EIS process.

This option is the least administratively burdensome, but it also offers the least protection for sole source aquifers.

2. EPA takes the initiative to determine broad areas of the country as sole source aquifers, and also reviews all Federally-financed projects (VA, FHA, etc.).

It could be argued that this option offers greater protection for sole source aquifers, but it also poses such enormous burden on limited EPA and State resources that the aquifers would not be protected. It would involve the EPA in many local land use issues and perhaps result in delaying of many Federal projects that should not be delayed for a day.

It is recommended that EPA choose the following more appropriate option:

EPA must react to incoming petitions. But in addition the Agency should initiate a study (under Section 1442) to determine the extensiveness of sole source aquifers and the benefits the sole source determination would produce. USGS should play a major role in this study, since it is the main monitoring and data gathering

DRAFT

authority in the field. The results of the study could be used to determine (1) what areas should be determined and (2) if EPA has the resources to implement such action.

Finally, it is recommended that EPA use the EIS process to fulfill the project review requirement. Although this might be criticized for not being a sufficient response, EPA's limited resources would prohibit any broader action.

Acknowledgment

This draft strategy document was prepared by the Program Evaluation Division, Office of Planning and Evaluation, U.S. Environmental Protection Agency, Washington, D.C., in cooperation with the Water Supply Division, other EPA Headquarters offices, the EPA Regional Offices, a wide variety of State water supply officials, the National Drinking Water Advisory Council, and other interested parties. Any person, public body, or organization may comment on its contents. Comments should be directed to the Deputy Assistant Administrator for Water Supply, U.S. EPA, Washington, D.C., 20460.